EL-MOASSER

Mathematics

By a group of supervisors

Parents' Guide

The book includes The uncovered part from the first term

معاك
Ma3ak App
Interactive Application
For Distance Learning

بتصريح وتحت إشراف
وزارة التربية والتعليم والتعليم الفني
MINISTRY OF EDUCATION AND TECHNICAL EDUCATION

SECOND TERM

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Theme 2 | Mathematical Operations and Algebraic Thinking

UNIT 7 Multiplication and Division : Computation and Relationships

» **Concept 2 :** Dividing by 1-Digit Divisors

Fast Fact

The emperor penguin is the world's largest penguin. It can weigh up to 40 kg. In the Antarctic, an adult male emperor penguin will keep a single egg warm for about 63 days until the egg hatches. **About how many weeks will the penguin keep the egg warm ?**

Concept 2

Dividing by 1-Digit Divisors

Fast Fact

Cheetah is the fastest land animal in the world. A cheetah can reach **112 kilometers** *per hour.*
If a cheetah ran for quarter an hour at its fastest speed, how far could it run ?

Concept Overview

In concept 2 :

Dividing by One-Digit Divisors, students build on their learning in primary 3 to deepen and extend their understanding of division and improve their procedural fluency. They explore three different strategies for multiplying : the area model strategy, the partial products algorithm, and the standard algorithm. They apply their knowledge of place value, patterns when dividing multiples of 10 by one-digit numbers, and multiplication facts to solve division problems. They use the relationship between multiplication and division to check quotients. Good mathematicians make connections between mathematical concepts and use those connections to solve problems. This concept encourages that practice. Students end the concept by solving challenging story problems involving all four operations.

Lesson No.	Lesson Name	Vocabulary Terms	Learning Objectives
Lesson 1	7-10 Exploring Remainders	Dividend - Divisor - Quotient - Remainder	• Students will identify the dividend, divisor, and quotient of a division problem. • Students will solve division problems. • Students will explain what a remainder represents in a division problem.
Lesson 2	7-11 Patterns and Place Value in Division	Dividend - Divisor - Quotient - Remainder	• Students will use place value, multiplication facts, and patterns with zeros to divide multiples of 10, 100 and 1,000 by one-digit divisors.
Lesson 3	7-12 The Area Model and Division	Area model - Dividend - Divisor - Quotient - Remainder	• Students will use area models to represent and solve division problems.
Lesson 4	7-13 The Partial Quotients Algorithm	Partial quotients algorithm	• Students will use the partial quotients algorithm to divide dividends with up to four digits by one-digit divisors.
	7-14 The Standard Division Algorithm	Standard algorithm - Regroup	• Students will estimate quotients using properties of place value and patterns in multiplication and division. • Students will use the standard algorithm to solve division problems.
Lesson 5	7-15 Division and Multiplication	Accuracy - Reasonable - Regroup	• Students will use properties of place value to accurately record quotients. • Students will use the relationship between multiplication and division to check the accuracy of quotients.
	7-16 Solving Challenging Story Problems	Review vocabulary as needed	• Students will organize information in story problems to determine when to add, subtract, multiply or divide. • Students will solve story problems using addition, subtraction, multiplication and division.

Lesson 1

7-10 Exploring Remainders

Learn

Three friends are playing a game of dominoes. There are 28 dominoes in the set. If each player receives the same number of dominoes, how many dominoes will each player get ? How many dominoes will be left over ?

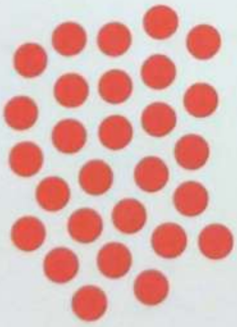
- This problem would be solved using division. Sometimes a number cannot be divided evenly. The amount left over is called the remainder.

Divide : 28 by 3.

Write $28 \div 3$

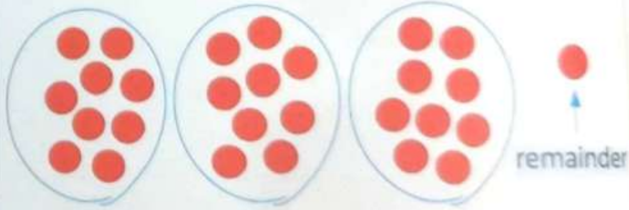
Step 1

Use 28 counters



Step 2

Draw 3 circles. Divide the 28 counters into 3 equal groups. The counter left over is the remainder.



The quotient is 9 and the remainder is 1

Then : 28 ÷ 3 = 9 R 1

dividend — divisor — quotient — remainder

So, each player will get 9 dominoes. There will be 1 domino left over.

Math Hint

The sum of the digit 2 and 8 is 10 and 10 is not existing when skip counting by 3s so, there will be a remainder.

Note that

If the number is divided equally, the remainder is 0

Examples : $27 \div 3 = 9\ R\ 0$

$40 \div 8 = 5\ R\ 0$

ERROR ALERT

If the remainder is greater than the divisor, keep dividing the counters evenly until the remainder is less than the divisor.

Notes for parents :

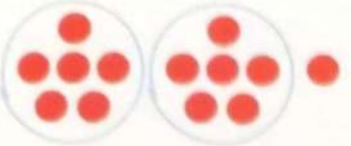
- Ask your child what the numbers in the equation represent in the problem. Label the numbers in the equation with the correct vocabulary words.

Example 1

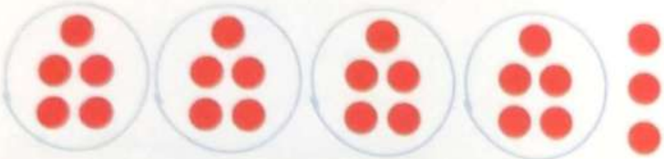
Find the quotient and the remainder. You may use counters to model.

a. $13 \div 2$ b. $23 \div 4$ c. $32 \div 3$

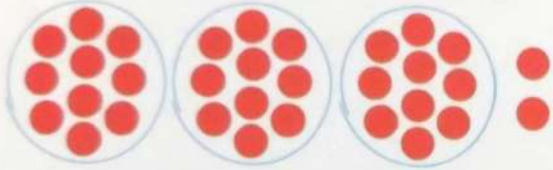
Solution

a. 

$13 \div 2 = 6 \text{ R } 1$

b. 

$23 \div 4 = 5 \text{ R } 3$

c. 

$32 \div 3 = 10 \text{ R } 2$

Remember

Division is the inverse of multiplication

$2 \times 6 = 12$

$12 \div 2 = 6$

So

$13 \div 2 = 6 \text{ R } 1$

because $13 = (2 \times 6) + 1$

Note that

The remainder is always less than the divisor.

Example 2

There are 62 students in fourth grade in a school. Each table in the library room seats six students. How many tables are needed to seat all fourth graders ?

Solution

This problem would be solved using division $62 \div 6 = 10 \text{ R } 2$

11 tables are needed (10 tables will be filled and one more table is needed for the 2 extra students) So, $10 + 1 = 11$ tables are needed.

Check your understanding

Find the quotient and the remainder. You may use counters to model.

a. $17 \div 5$

____

b. $26 \div 6$

____

c. $9 \div 2$

____

• Your child may be confused by having a remainder in a division problem. He/She may try to place the remainder into an existing group or into an additional group, both leading to unequal sharing.

Exercise 1

7-10 Exploring Remainders

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING

From the school book

1. Find the quotient and the remainder. Complete the table. You may use counters to model.

	Problem	Quotient	Remainder	Model
a.	15 ÷ 6			
b.	5 ÷ 4			
c.	38 ÷ 5			
d.	22 ÷ 7			
e.	26 ÷ 3			
f.	17 ÷ 9			

2. Find each quotient and remainder. Complete the following.

a. 11 ÷ 3 = ☐ R ☐

b. 7 ÷ 2 = ☐ R ☐

c. 26 ÷ 4 = ☐ R ☐

d. 51 ÷ 8 = ☐ R ☐

e. 20 ÷ 9 = ☐ R ☐

f. 12 ÷ 5 = ☐ R ☐

3. Find each quotient and remainder. You may use counters to help you.

a. 13 ÷ 2 = ______

b. 18 ÷ 7 = ______

c. 30 ÷ 4 = ______

d. 22 ÷ 6 = ______

e. 42 ÷ 8 = ______

f. 57 ÷ 7 = ______

g. 26 ÷ 5 = ______

h. 93 ÷ 9 = ______

i. 35 ÷ 6 = ______

4. Fin
a.
d.
g.

5. P

6.

4. Find each quotient and remainder. Circle all the problems which has 0 left over.

a. 20 ÷ 7 = ________ b. 18 ÷ 9 = ________ c. 31 ÷ 8 = ________

d. 72 ÷ 9 = ________ e. 51 ÷ 5 = ________ f. 22 ÷ 2 = ________

g. 44 ÷ 6 = ________ h. 24 ÷ 3 = ________ i. 65 ÷ 10 = ________

5. Put (✓) to the correct statement and (✗) to the incorrect statement.

a. 15 ÷ 14 = 3 R 3 [ ]

b. 45 ÷ 5 = 9 R 0 [ ]

c. 44 ÷ 6 = 7 R 4 [ ]

d. 23 ÷ 3 = 7 R 2 [ ]

e. 53 ÷ 10 = 5 R 3 [ ]

f. 35 ÷ 4 = 7 R 3 [ ]

6. Solve the following problems.

a. Saleem brought 15 pies to give to 4 of his friends. How can Saleem share the pies equally? What is left?

b. Rose has 19 biscuits to give to her 9 friends.
How can Rose share the biscuits equally? What is left?

c. A full box of crayons contains 8 crayons. If each of the 42 students in a class needs to use 1 crayon at the same time in a class activity
, how many boxes of crayons are needed for all the students?

d. There are 48 mugs that need to be put in boxes and shipped. Five mugs can fit in each box. How many boxes will be needed to ship the mugs?

e. Going to a Swim Meet. The swim team is taking a bus to a swim meet. Each bus seats 40 students. Sixty students will attend the meet. How many buses are needed? Use numbers, words, and symbols to explain your thinking.

f. Thirty-two people need to travel to a special event in Zamalek. There are many different ways they can travel to the event. They can only choose one of the ways to travel for the whole group of people. Look at all of the forms of transportation they can take on the chart.

Form of transportation	How many people can fit on each ?	Equation
Microbus	9	
Motorbike	2	
Car	4	
Van	7	

Which form of transportation should the group take to the event ? Explain your answer.

Challenge

7. Each page of Ahmed's album holds 4 photographs. He filled all 9 pages and still had 3 photos left over.
How many photos did Ahmed have to start with ?

Multiple Choice Questions

Choose the correct answer.

1. The amount that is left over when a number cannot be divided evenly is called ______
   A. dividend B. divisor
   C. quotient D. remainder

2. The number, not including the remainder, that results from dividing is called ______
   A. dividend B. divisor
   C. quotient D. product

3. 11 ÷ 3 = ______
   A. 3 R 1 B. 4 R 1
   C. 3 R 2 D. 4 R 2

4. 28 ÷ 6 = ______
   A. 5 R 2 B. 4 R 4
   C. 5 R 4 D. 4 R 2

5. 46 ÷ 8 = ______
   A. 4 R 6 B. 4 R 8
   C. 5 R 6 D. 5 R 8

6. 36 ÷ 4 = ______
   A. 8 R 3 B. 9 R 1
   C. 9 R 2 D. 9 R 0

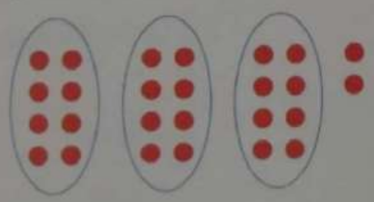
7. 52 ÷ 7 = ______
   A. 7 R 1 B. 7 R 2
   C. 7 R 3 D. 7 R 4

8. 5 ÷ 3 = ______
   A. 1 R 0 B. 1 R 1
   C. 1 R 2 D. 1 R 3

9. 27 ÷ 9 = ______
   A. 2 R 8 B. 3 R 1
   C. 3 R 0 D. 3 R 8

10. 25 ÷ 2 = ______
    A. 12 R 0 B. 12 R 1
    C. 13 R 0 D. 13 R 1

11. Which division problem does the model show?



    A. 24 ÷ 3 = 8 B. 23 ÷ 3 = 7 R 2
    C. 26 ÷ 3 = 8 R 2 D. 21 ÷ 3 = 7

12. Which of the following shows 22 ÷ 3?
    A. 22 dots in each of 3 circles.
    B. 3 circles, two with 7 dots and one with 8 dots.
    C.
    D.

13. Mary cooked 32 cups of soup and poured it into containers that filled up with 6 cups each. How many cups of soup were left over?
    A. 2 cups. B. 4 cups.
    C. 5 cups. D. 6 cups.

14. Ramez is packing 54 muffins in boxes. Each box contains 5 muffins. How many boxes are needed to pack all the muffins?
    A. 9 boxes. B. 10 boxes.
    C. 11 boxes. D. 12 boxes.

Lesson 2

7-11 Patterns and Place Value in Division

Learn

Sara's family collected coins, when the jar was full, Sara's father gave the coins to his three daughters.

They counted 6,000 coins and shared them equally.

How many coins did each girl get ?

Divide : 6,000 ÷ 3.

Basic facts, pattern and place value can help you divide.

Use the basic fact 6 ÷ 3 = 2

6 ÷ 3 = 2
60 ÷ 3 = 20
600 ÷ 3 = 200
6,000 ÷ 3 = 2,000

Three zeroes → Three zeroes

So, each girl got 2,000 coins.

Remember

6 ÷ 3 = 2
6 is called the dividend
3 is called the divisor
2 is called the quotient

More Examples :

32 ÷ 8 = 4	40 ÷ 5 = 8	63 ÷ 7 = 9
320 ÷ 8 = 40	400 ÷ 5 = 80	630 ÷ 7 = 90
3,200 ÷ 8 = 400	4,000 ÷ 5 = 800	6,300 ÷ 7 = 900
32,000 ÷ 8 = 4,000	40,000 ÷ 5 = 8,000	63,000 ÷ 7 = 9,000

Notes for parents :

- Your child may only look at the place with the highest value and try to divide. For example, with 2,400 ÷ 3, he/she may try to solve 2 ÷ 3 instead of 24 ÷ 3.

Example 1

Use patterns to find the quotient.

a. $8 \div 2 =$ ____

$80 \div 2 =$ ____

$800 \div 2 =$ ____

$8{,}000 \div 2 =$ ____

b. $15 \div 5 =$ ____

$150 \div 5 =$ ____

$1{,}500 \div 5 =$ ____

$15{,}000 \div 5 =$ ____

c. $20 \div 4 =$ ____

$200 \div 4 =$ ____

$2{,}000 \div 4 =$ ____

$20{,}000 \div 4 =$ ____

Solution

a. 4

40

400

4,000

b. 3

30

300

3,000

c. 5

50

500

5,000

Example 2

Write the basic fact that you can use to solve these problems. Then solve each problem.

	Problem	Basic Fact	Quotient
a.	$90 \div 3$		
b.	$160 \div 2$		
c.	$5{,}500 \div 5$		
d.	$1{,}000 \div 2$		

Solution

	Problem	Basic Fact	Quotient
a.	$90 \div 3$	$9 \div 3 = 3$	30
b.	$160 \div 2$	$16 \div 2 = 8$	80
c.	$5{,}500 \div 5$	$55 \div 5 = 11$	1,100
d.	$1{,}000 \div 2$	$10 \div 2 = 5$	500

• Your child may be confused by how many zeroes to put in a quotient, especially when the basic fact includes a zero. For example, the basic fact for $2{,}000 \div 4$ is $20 \div 4 = 5$. The quotient is 500 since there are two other zeroes in the dividend.

Example 3

Complete each missing number.

a. 140 ÷ 7 = ☐

b. 35,000 ÷ 5 = ☐

c. ☐ ÷ 3 = 100

d. 280 ÷ ☐ = 40

e. ☐ ÷ 8 = 30

f. 3,200 ÷ ☐ = 800

Solution

a. 20

b. 7,000

c. 300

d. 7

e. 240

f. 4

Check your understanding

1. Use patterns and place value to find each quotient.

a. 8 ÷ 4 = ☐
80 ÷ 4 = ☐
800 ÷ 4 = ☐
8,000 ÷ 4 = ☐

b. 18 ÷ 9 = ☐
180 ÷ 9 = ☐
1,800 ÷ 9 = ☐
18,000 ÷ 9 = ☐

c. 3 ÷ 3 = ☐
30 ÷ ☐ = 10
☐ ÷ 3 = 100
3,000 ÷ 3 = ☐

2. How can you use 16 ÷ 4 = 4 to help you find 160 ÷ 4 ?

____

____

Notes for parents :

• Make sure your child recognized that the number of zeroes in the ... zeroes in the quotient unless the basic ...

Exercise 2

7-11 Patterns and Place Value in Division

● REMEMBER ● UNDERSTAND ● APPLY PROBLEM SOLVING | From the school book

1. Use patterns and place value to find each quotient.

a. $6 \div 2 =$ ☐

$60 \div 2 =$ ☐

$600 \div 2 =$ ☐

$6{,}000 \div 2 =$ ☐

b. $18 \div 3 =$ ☐

$180 \div 3 =$ ☐

$1{,}800 \div 3 =$ ☐

$18{,}000 \div 3 =$ ☐

c. $42 \div 6 =$ ☐

$420 \div 6 =$ ☐

$4{,}200 \div 6 =$ ☐

$42{,}000 \div 6 =$ ☐

d. $7 \div 7 =$ ☐

$70 \div 7 =$ ☐

$700 \div 7 =$ ☐

$7{,}000 \div 7 =$ ☐

e. $32 \div 8 =$ ☐

$320 \div 8 =$ ☐

$3{,}200 \div 8 =$ ☐

$32{,}000 \div 8 =$ ☐

f. $63 \div 9 =$ ☐

$630 \div 9 =$ ☐

$6{,}300 \div 9 =$ ☐

$63{,}000 \div 9 =$ ☐

2. **Division Patterns** Label the parts in the equation using the words divisor, dividend, and quotient. Then, look for patterns to complete the remaining problems. The first problem in the table is an example that is filled in for you.

Equation	Basic (Related) Fact	Quotient
$600 \div 3$	$6 \div 3 = 2$	200
$150 \div 5$		
$1{,}200 \div 6$		
$200 \div 4$		
$700 \div 7$		
$6{,}400 \div 8$		
$4{,}500 \div 9$		
$270 \div 3$		

3. Find the quotient. Use basic facts and place value patterns to help you divide.

a. 4 ones ÷ 2 = ______ ones
4 ÷ 2 = ______
4 tens ÷ 2 = ______ tens
40 ÷ 2 = ______
4 hundreds ÷ 2 = ______ hundreds
400 ÷ 2 = ______
4 thousands ÷ 2 = ______ thousands
4,000 ÷ 2 = ______

b. 3 ones ÷ 3 = ______ ones
3 ÷ 3 = ______
3 tens ÷ 3 = ______ tens
30 ÷ 3 = ______
3 hundreds ÷ 3 = ______ hundreds
300 ÷ 3 = ______
3 thousands ÷ 3 = ______ thousands
3,000 ÷ 3 = ______

c. 24 ones ÷ 8 = ______ ones
24 ÷ 8 = ______
24 tens ÷ 8 = ______ tens
240 ÷ 8 = ______
24 hundreds ÷ 8 = ______ hundreds
2,400 ÷ 8 = ______
24 thousands ÷ 8 = ______ thousands
24,000 ÷ 8 = ______

d. 42 ones ÷ 6 = ______ ones
42 ÷ 6 = ______
42 tens ÷ 6 = ______ tens
420 ÷ 6 = ______
42 hundreds ÷ 6 = ______ hundreds
4,200 ÷ 6 = ______
42 thousands ÷ 6 = ______ thousands
42,000 ÷ 6 = ______

4. Find each quotient.

a. 27 ÷ 3 = ______
b. 54 ÷ 9 = ______
c. 120 ÷ 6 = ______
d. 720 ÷ 8 = ______
e. 180 ÷ 2 = ______
f. 450 ÷ 5 = ______
g. 3,600 ÷ 6 = ______
h. 4,900 ÷ 7 = ______
i. 3,200 ÷ 4 = ______
j. 6,400 ÷ 8 = ______
k. 4,000 ÷ 5 = ______
l. 2,100 ÷ 7 = ______
m. 30,000 ÷ 6 = ______
n. 81,000 ÷ 9 = ______
o. 24,000 ÷ 4 = ______

5. Complete the missing numbers.

a. 18 ÷ ☐ = 6
b. 120 ÷ ☐ = 20
c. 630 ÷ ☐ = 90
d. 70 ÷ ☐ = 10
e. ☐ ÷ 3 = 30
f. ☐ ÷ 4 = 700
g. 1,600 ÷ ☐ = 800
h. 3,200 ÷ ☐ = 400
i. 4,500 ÷ ☐ = 500
j. ☐ ÷ 9 = 9,000
k. ☐ ÷ 3 = 8,000
l. ☐ ÷ 1 = 9,000
m. ☐ ÷ 5 = 5,000
n. ☐ ÷ 6 = 8,000
o. ☐ ÷ 7 = 6,000

6. Solve the following problems.

a. Mrs. Farida's class is 60 minutes long. She wants to divide her class time into 3 equal periods. How long will each period be ?

b. Bassem is reading a book of 180 pages. If he reads 9 pages per day, , how long will it take him to finish the book ?

c. There were 540 crayons in a large bin. Students were asked to put 9 crayons in a small box for each student to use.
How many small boxes will students need in order to complete this task ?

d. At a primary school, the students collected 3,000 pounds as a donation to kids Hospital. Each student donated 5 pounds. How many students donated ?

e. **Riding the Metro**
There are 8,100 people that need to get to work on Monday morning at 7:00 a.m. They all want to take the metro to work. There are 9 cars on each metro. If 90 people can fit in each car, can all the people take the same metro to work ? Explain your thinking using numbers, words and symbols.

f. A factory produced 54,000 pieces of toys in 9 months. The factory produced the same number of pieces each month.
How many pieces did the factory produce per month ?

Challenge

7. A class wants to plant 450 flowers for Earth Day, in equal rows. If they plant 50 rows, how many flowers are in each row ?

Multiple Choice

Choose the correct answer.

1. 80 ÷ 2 = ______
   A. 4 B. 40
   C. 400 D. 160

2. 400 ÷ 8 = ______
   A. 5 B. 50
   C. 500 D. 5,000

3. 160 ÷ 4 = ______
   A. 4 B. 40
   C. 400 D. 4,000

4. 3,000 ÷ 3 = ______
   A. 1 B. 10
   C. 100 D. 1,000

5. 4,200 ÷ 7 = ______
   A. 6 B. 60
   C. 600 D. 6,000

6. 2,000 ÷ 5 = ______
   A. 4 B. 40
   C. 400 D. 4,000

7. 63,000 ÷ 9 = ______
   A. 7 B. 70
   C. 700 D. 7,000

8. 56 ÷ 7 = ______
   A. 8 B. 80
   C. 800 D. 8,000

9. 320 ÷ ______ = 40
   A. 8 B. 80
   C. 800 D. 8,000

10. ______ ÷ 7 = 300
    A. 21 B. 210
    C. 2,100 D. 21,000

11. 63 tens ÷ 7 = ______ tens
    A. 9 B. 90
    C. 900 D. 9,000

12. 27 hundreds ÷ 9 = ______
    A. 30 hundreds B. 3 tens
    C. 30 tens D. 300 tens

13. ______ tens ÷ 8 = 5 tens
    A. 4 B. 40
    C. 400 D. 4,000

14. ______ hundreds ÷ 5 = 20 tens
    A. 1 B. 10
    C. 100 D. 1,000

Lesson
3

7-12 The Area Model and Division

Learn

Bassem's family drove 615 kilometers in 3 days. They drove the same number of kilometers every day.

How many kilometers did they drive per day ?

Divide : 615 ÷ 3

You can use an area model for division.

Step 1

Draw a long rectangle and write 3 on the smaller left side of the rectangle.

Think
615 = 600 + 15

3 [ ]

Step 2

Since 3 × 200 = 600 , then 600 is a multiple of 3 which is the divisor in this problem.

Draw a vertical line inside the rectangle. Write 3 × 200 = 600 inside the section of the model and 200 underneath.

3	3 × 200 = 600	
	200	

Remember
Area of rectangle = length × width

Step 3

Since 3 × 5 = 15 , then 15 is a multiple of 3 which is the divisor in this problem. Write 3 × 5 = 15 inside the empty section of the model and 5 underneath.

3	3 × 200 = 600	3 × 5 = 15	
	200	5	R 0

Notes for parents :

- Your child may get confused with how many zeroes to place at the end of a product. For example, he/she may write 7 × 3,000 = 2,100 instead of 7 × 3,000 = 21,000. Your child may also write 4 × 500 = 200 instead of 4 × 500 = 2,000

Step 4

Check your answers and there is no left over.

Add the areas : $600 + 15 = 615$ R 0 (no remainder)

Add the sides : $200 + 5 = 205$

then : $615 \div 3 = 205$

They drove 205 kilometers per day for 3 days.

Example 1

There are 548 pencils will be shared among 5 classrooms. How many pencils will each classroom get ?

Solution

Divide : $548 \div 5$

Use an area model for division.

Think

$548 = 500 + 48$

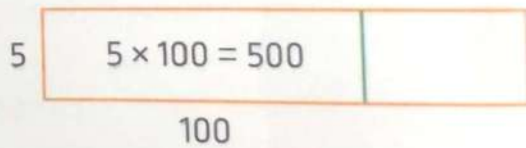
Step 1

Draw a long rectangle and write 5 on the smaller left side of the rectangle.

Step 2

Since $5 \times 100 = 500$, draw a vertical line inside the rectangle.

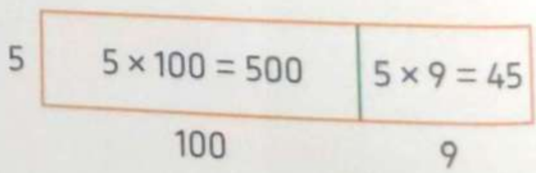
Write $5 \times 100 = 500$ inside the section of the model and 100 underneath.



Step 3

There are 48 pencils left to be divided known that $5 \times 10 = 50$ and $5 \times 9 = 45$

So, write $5 \times 9 = 45$ inside the empty section of the model and 9 underneath.



Notes for parents :

- Your child may have difficulty determining which multiples to use to start decomposing a dividend when using an area model. It is most effective and efficient to start with multiplying the divisor by 10, 100 or 1,000. For example, for $256 \div 8$, it is helpful to begin with $8 \times 10 = 80$ and to work up to 256.

Step 4

Since there are 3 left over not enough to make another group of 5, there is a remainder that is 3.
So, write 3 outside the rectangle next to the area model.

5	5 × 100 = 500	5 × 9 = 45	
	100	9	R 3

Step 5

Check your answers.

Add the areas and the remainder : 500 + 45 + 3 = 548

Add the sides and the remainder : 100 + 9 R 3 = 109 R 3

then : 548 ÷ 5 = 109 R 3

So, each class will get 109 pencils and there are 3 pencils left over that cannot be shared evenly among the classes.

Example 2

Draw an area model to solve each problem.

a. 69 ÷ 3 b. 825 ÷ 4 c. 3,600 ÷ 6

Remember
Check the left over in each problem

Solution

a. Think : 69 = 60 + 9

3	3 × 20 = 60	3 × 3 = 9
	20	3

Add the areas : 60 + 9 = 69 R 0 (no remainder)

Add the sides : 20 + 3 = 23

So, 69 ÷ 3 = 23

b. Think : 825 = 800 + 25 , 25 = 24 + 1

4	4 × 200 = 800	4 × 6 = 24	
	200	6	R 1

Add the areas : 800 + 24 + R 1 = 825

Add the sides : 200 + 6 R 1 = 206 R 1

So, 825 ÷ 4 = 206 R 1

c.

6	6 × 600 = 3,600
	600

So, 3,600 ÷ 6 = 600 (no remainder)

Check your understanding

Use the area to model the following problem.

535 ÷ 5

* Let your child check the left over in each problem.

Exercise 3

7-12 The Area Model and Division

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING   From the school book

1. Use the area model to solve each of the following.

a. $64 \div 2$

b. $85 \div 4$

c. $217 \div 5$

d. $159 \div 3$

e. $636 \div 6$

f. $484 \div 8$

2. Use the area model to solve the problems. Show your work.

a. $48 \div 4$

b. $67 \div 3$

c. $613 \div 3$

e. $742 \div 7$

g. 455

i. 3,200

3. Solve each

a. Sylvia i

63 muf

, what

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c. 613 ÷ 3

d. 810 ÷ 9

e. 742 ÷ 7

f. 248 ÷ 6

g. 455 ÷ 4

h. 535 ÷ 5

i. 3,200 ÷ 8

j. 4,500 ÷ 9

3. Solve each problem using an area model.

a. Sylvia is sharing her muffines. If she shares 63 muffines among 3 groups of people , what is the share of each group ?

b. An organization donated 89 books to a school. The books will be shared among 6 classrooms. How many books will each classroom get ?

c. Rashida saved 545 L.E. to buy a toy car. She did this by saving 5 L.E. every day she worked around her neighborhood. How many days did she have to work to save enough money to buy a toy car ?

d. There are 864 pencils. The pencils have to be divided equally among 4 classrooms. How many pencils will each classroom get ?

e. Amgad saved 868 coins last year. He wanted to put them intc 8 jars. How many coins will be in each jar ? Is there any coins left over ?

f. Osama bought lunch for 6 people. He spent 672 pounds.
If each person's lunch cost the same amount.
How much did one lunch cost ?

g. Amir bought a book of stickers. There were 92 stickers in the book. He wanted to give them to 4 of his friends. How many stickers will each of his friends get ?

h. **Writing About Math.** There are 492 cars that need to park at the stadium. The stadium has 4 parking lots. The stadium wants the same number of cars to park in each lot. How could you use the previous problem to help you solve $492 \div 4$?
Use words, numbers and symbols to explain your thinking.

4. Critical thinking.

a. Which choice best completes the area model to find $94 \div 4$?

4	?	$4 \times 3 = 12$	
	20	3	R 2

A. $4 \times 2 = 8$

B. $4 \times 20 = 80$

C. $20 + 4 = 24$

D. $4 \times 16 = 20$

Complete : $94 \div 4 =$ ______

b. The divisor is 6 and the dividend is 752. **Divide.**

Multiple Choice Questions

Choose the correct answer.

1. In the opposite area model, which choice best represents the problem ?

5	$5 \times 100 = 500$	$5 \times 3 = 15$	
	100	3	R2

A. $515 \div 5$ B. $502 \div 5$
C. $512 \div 5$ D. $517 \div 5$

2. Which area model best represents $828 \div 4$?

A.

4	$4 \times 100 = 400$	$4 \times 7 = 28$
	100	7

B.

8	$8 \times 100 = 800$	$8 \times 3 = 24$	
	100	3	R4

C.

4	$4 \times 200 = 800$	$4 \times 7 = 28$
	200	7

D.

4	$4 \times 200 = 800$	$4 \times 7 = 28$
	800	28

3. Which number best completes the area model to find $148 \div 6$?

6	?	$6 \times 4 = 24$	
		4	R4

The value of ? is ______

A. $6 \times 2 = 12$ B. $6 \times 20 = 120$
C. $20 + 4 = 24$ D. $20 + 4 + 2 = 26$

4. $93 \div 4 =$ ______

A. 25 R 3 B. 23 R 1
C. 24 R 2 D. 21 R 3

5. $372 \div 6 =$ ______

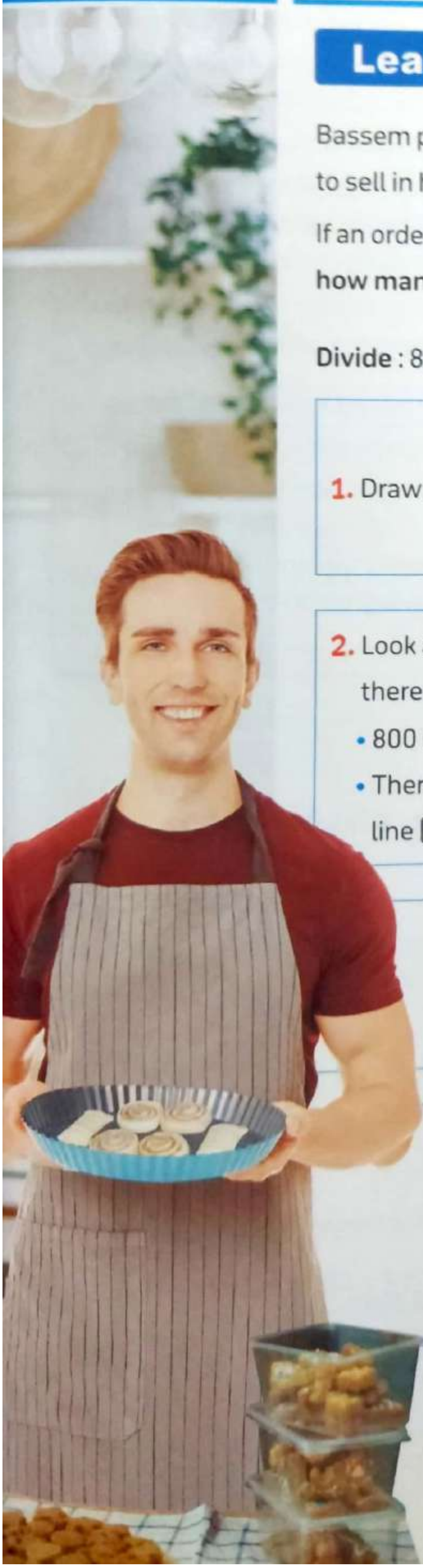
A. 61 R 1 B. 61 R 5
C. 62 D. 61

6. A chicken farmer uses egg cartons made from recycled material. If 6 eggs fit into each carton, how many cartons will he need for 312 eggs ?

A. 50 cartons B. 51 cartons
C. 52 cartons D. 53 cartons

Lesson
4

7-13 The Partial Quotients Algorithm
7-14 The Standard Division Algorithm



Learn The partial quotients algorithm

Bassem packs the cakes in groups of 4 to sell in his market.

If an order calls for 898 cakes,

how many packages will Bassem need ?

Divide : 898 by 4

1. Draw a line as shown in the figure.

Divisor: 4 | Dividend: 898

```
   4 | 8 9 8
```

2. Look at the dividend, start from the left there are 8 in the hundreds place = 800
   - 800 is a multiple of 4 because 4 × 200 = 800
   - Then write 200 to the right of the line (part of the quotient).

```
   4 | 8 9 8 |

   4 | 8 9 8 | 200
```

3. Write 800 under the dividend and subtract from 898, you will get 98.

```
   4 | 8 9 8 | 200
   - | 8 0 0 |
     |   9 8 |
```

4. Write a multiple of 4 that is under 98 and subtract (note 4 × 10 = 40), then write 10 to the right of the line as a part of quotient.

```
   4 | 8 9 8 | 200
   - | 8 0 0 |
     |   9 8 | 10
   - |   4 0 |
     |   5 8 |
```

Notes for parents :
- Remind your child to start division from the left.

5. Repeat writing a multiple of 4 under 58 and subtract [note $4 \times 10 = 40 < 58$] and write 10 as a part of quotient to the right of the line.

4	8 9 8	200
−	8 0 0	
	9 8	10
−	4 0	
	5 8	10
−	4 0	
	1 8	

6. Write a multiple of 4 that is close to 18 [note $4 \times 4 = 16 < 18$], then write 16 under 18 and subtract and write 4 as a part of quotient to the right of the line.

- Then the quotient $= 200 + 10 + 10 + 4$
  $= 224$
- Then $898 \div 4 = 224$ and the remainder $= 2$

Note that

4 does not divide 898 equally because there is a remainder = 2

4	8 9 8	200
−	8 0 0	
	9 8	10
−	4 0	
	5 8	10
−	4 0	
	1 8	4
−	1 6	
	2 (remainder)	

Example 1

Divide.

a. $78 \div 6$

b. $658 \div 3$

c. $8{,}785 \div 7$

Solution

a.

6	7 8	10
−	6 0	
	1 8	3
−	1 8	
	0	

$78 \div 6 = 10 + 3 = 13$

b.

3	6 5 8	200
−	6 0 0	
	5 8	10
−	3 0	
	2 8	9
−	2 7	
	1	

$658 \div 3 = 200 + 10 + 9 = 219$

and the remainder = 1

c.

7	8, 7 8 5	1,000
−	7, 0 0 0	
	1, 7 8 5	200
−	1, 4 0 0	
	3 8 5	50
−	3 5 0	
	3 5	5
−	3 5	
	0	

$8{,}785 \div 7$

$= 1{,}000 + 200 + 50 + 5 = 1{,}255$

Notes for parents :

- Your child may use any multiple of divisor to divide.

Learn Estimating quotients

Each morning, Ahmed gives a recycling report on his school's television system.
At the school, a team of 6 students picked up 257 recyclable cans and bottles. About how many recyclables per student was that ?

- Sometimes you only need to find an estimation. One way to estimate quotients is to substiute numbers that make mental math simpler.
- Mina and Marwan substitue numbers close to 257 to make their mental math simpler.

Mina thinks

$257 \div 6$ is about

$300 \div 6$

$300 \div 6 = 50$

Each student picked up about 50 cans and bottles.

Marwan thinks

$257 \div 6$ is about

$240 \div 6$

$240 \div 6 = 40$

That was about 40 cans and bottles per student.

Both estimations are reasonable.

Example 2

Estimate the quotient of $63 \div 4$

Solution

The dividend 63 is between 40 and 80

, then $40 \div 4 = 10$ and $80 \div 4 = 20$

, then the quotient is between 10 and 20

- Discuss the purpose of rounding versus using basic facts to estimate by asking your child which method makes the problem easier to calculate mentally. Demonstrate how using a basic fact makes estimating easier for $257 \div 6$ by having your child try to find each of these quotients mentally : $300 \div 6$, $240 \div 6$.

Example 3

Estimate the quotient of $524 \div 3$

Solution

The dividend 524 is between 300 and 600

, then $300 \div 3 = 100$ and $600 \div 3 = 200$

, then the quotient is between 100 and 200

Check your understanding

1. Use the partial quotient algorithm to divide.

a. $52 \div 3$

b. $783 \div 5$

c. $7,320 \div 6$

2. Estimate each quotient.

a. $37 \div 4$

______
______
______

b. $587 \div 2$

______
______
______

c. $762 \div 9$

______
______
______

Notes for parents :

• Make sure your child use basic facts and place-value pattern to divide.

Learn The standard division algorithm

Students in the third, fourth and fifth grades made 525 origami animals to display in the library. If each grade made the same number of animals, how many animals did each grade make?

Origami animals

Origami is the Japanese art of folding paper into different shapes.

Divide: 525 ÷ 3 or 3)5 2 5

Step 1

Divide the hundreds.

Divide 5 ÷ 3

```
    1
3 )5 2 5     Multiply 1 × 3
 - 3  ←      Subtract 5 − 3
   2         Compare 2 < 3
```

Step 2

Bring down the tens. Divide the tens.

```
    1 7
3 )5 2 5     Bring down the tens.
 - 3 ↓       Divide 22 ÷ 3
   2 2       Multiply 7 × 3
 - 2 1       Subtract 22 − 21
     1       Compare 1 < 3
```

Step 3

Bring down the ones. Divide the ones.

```
    1 7 5
3 )5 2 5     Bring down the ones.
 - 3 ↓       Divide 15 ÷ 3
   2 2
 - 2 1 ↓
     1 5     Multiply 5 × 3
   - 1 5     Subtract 15 − 15
       0     Compare 0 < 3
```

Remember

After you divide the hundreds, tens or ones place, the remainder should always be less than the divisor.

Check
Multiply
3 × 175 = 525
The product equals the dividend

So, each grade made 175 origami animals.

Other Examples:

a. With a remainder

```
   1 6 8 R4        Check:  1 6 8   Multiply,
5 )8 4 4                 ×     5   then add the
 - 5 ↓                   -------
   3 4                     8 4 0   remainder
 - 3 0 ↓                 +     4
     4 4                 -------
   - 4 0                   8 4 4
       4  ←  4 is less than 5,
             so it is the remainder.
```

b. Zero in the dividend

```
   1 1 7        Check:  1 1 7
6 )7 0 2              ×     6
 - 6 ↓                -------
   1 0                  7 0 2
 -   6 ↓
     4 2
   - 4 2
       0
```

MATH IDEA

The order of division is as follows:

Divide
Multiply
Subtract
Compare
Bring down

Repeat this order until the division is complete.

• To help your child remember all steps in the division algorithm, let him/her use the following memoric or make up one of his/her own: Don't Make Silly Careless Blunders (Divide. Multiply. Subtract. Compare. Bring down).

Example 4

Divide : 1,765 ÷ 4

Solution

Steps : Divide , multiply , subtract , compare , bring down.

Step 1

```
    04
 4|1,765
 - 16
 ----
    1
```

Divide 1 ÷ 4
1 < 4
then write 0
over 1 and divide
17 ÷ 4
Subtract 17 – 16
Compare 1 < 4

Step 2

```
    044
 4|1,765
  - 16↓
  -----
     16
  -  16
  -----
      0
```

Bring down the tens
Bring down 6
Divide 16 ÷ 4
Multiply 4 × 4
Subtract 16 – 16
Compare 0 < 4

Step 3

```
    0441
 4|1,765
  - 16
  -----
     16
  -  16↓
  -----
      05
       4
  -----
       1
```

Bring down the ones
Bring down 5
Divide 5 ÷ 4
Multiply 1 × 4
Subtract 5 – 4
Compare 1 < 4
the remainder = 1

then, 1,765 ÷ 4 = 441 R 1

Example 5

Divide : 432 ÷ 4

Solution

(Zero in the quotient)

Step 1

Divide the 4 hundreds.

```
    1
 4|432
  - 4
  ---
    0
```

Step 2

Bring down the 3 tens.
Divide the 3 tens.

```
    10
 4|432
  - 4↓
  ----
    03
  -  0
  ----
     3
```

3 < 4
, so write a 0
in the quotient.

Step 3

Bring down the 2 ones. Divide the 32 ones.

```
    108
 4|432
  - 4
  ----
    03
  -  0↓
  ----
     32
  -  32
  -----
      0
```

then, 432 ÷ 4 = 108

Check your understanding

Divide.

a. 525 ÷ 5

b. 685 ÷ 4

Notes for parents :

- Remind your child of the division algorithm : divide, multiply, subtract, compare and bring down.
- Remind your child of including the remainder as a part of the answer.

Learn Model division

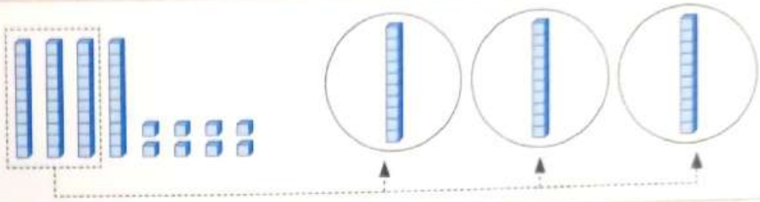
Activity 1

Divide 48 into 3 equal groups. Write 48 ÷ 3 or 3)48

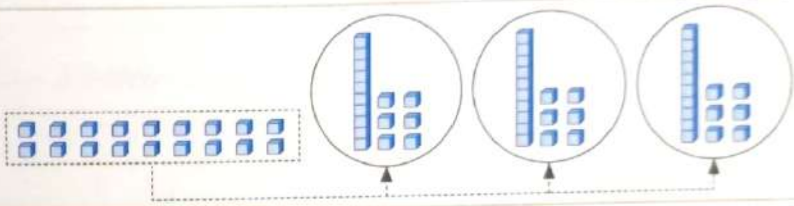
Make a model to show how many are in each group.

Step 1 Show 48 as 4 tens and 8 ones. Draw circles to make 3 equal groups.

Step 2 Place an equal number of tens into each group.



Step 3 Regroup 1 ten and 8 ones as 18 ones. Place an equal number of ones into each group.

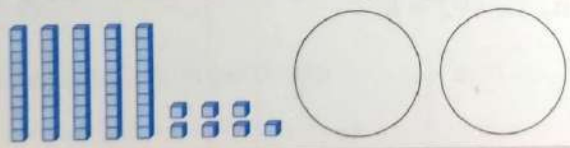


So, 48 ÷ 3 = 16

Activity 2

Here is a way to record division. **Divide 57 by 2.**

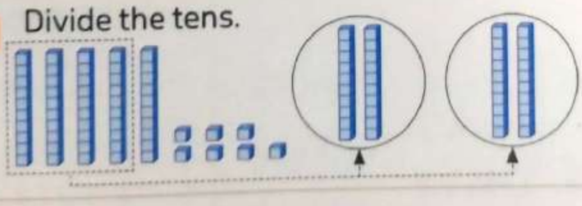
Step 1 Show the model and 2 equal groups.



Record:

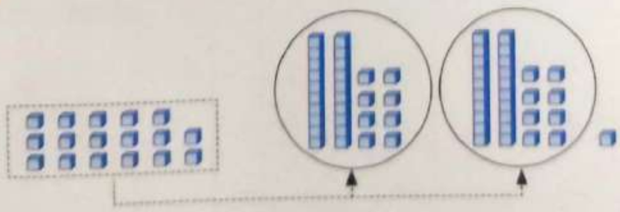
```
2)57
```

Step 2 Divide the tens.



```
   2      2 tens in each group
2)57
 - 4      4 tens used
   1      1 ten left
```

Step 3 Regroup. Divide the ones.



```
  28 R1   8 ones in each group
2)57
 - 4
  17
 -16      16 ones used
   1      1 one left
```

So, 57 ÷ 2 = 28 R 1

• Guide your child to model a division problem starting with tens, this is a more efficient method.

Exercise 4

7-13 The Partial Quotients Algorithm
7-14 The Standard Division Algorithm

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING

📖 From the school book

1. Use the partial quotient algorithm to divide.

a. 72 ÷ 4

b. 📖 517 ÷ 4

c. 📖 244 ÷ 6

d. 780 ÷ 5

e. 📖 897 ÷ 4

f. 376 ÷ 7

g. 📖 590 ÷ 5

h. 📖 892 ÷ 4

i. 📖 925 ÷ 6

j. 📖 1,216 ÷ 3

k. 3,784 ÷ 8

l. 📖 7,830 ÷ 5

2. Complete to estimate the quotient.

a. $72 \div 3$

The dividend 72 is between 60 and 90, then $60 \div 3 =$ ____ , $90 \div 3 =$ ____

, then the quotient is between ____ and ____

b. $524 \div 4$

The dividend 524 is between 400 and 800 , then $400 \div$ ____ = ____

, $800 \div$ ____ = ____

, then the quotient is between ____ and ____

c. $735 \div 2$

The dividend 735 is between ____ and ____ , then ____ $\div 2 =$ ____

, ____ $\div 2 =$ ____

, then the quotient is between ____ and ____

d. $7{,}462 \div 5$

The dividend 7,462 is between ____ and ____ , then ____ $\div$ ____ = ____ ,

____ $\div$ ____ = ____

, then the quotient is between ____ and ____

3. Estimate each quotient.

a. $632 \div 8 =$ ____	b. $312 \div 4 =$ ____	c. $762 \div 9 =$ ____	d. $495 \div 6 =$ ____
e. $536 \div 8 =$ ____	f. $3{,}748 \div 2 =$ ____	g. $4{,}681 \div 3 =$ ____	h. $8{,}642 \div 5 =$ ____

4. Copy and complete.

a.
□8
3 | 5 4
− 3
2 □
− 2 4
0

b.
2 □ R1
4 | 8 5
− □
0 □
− 4
□

c.
□1 R3
5 | 5 8
− □
□8
− 5
□

d.
□□ R□
3 | 4 1
− 3
□□
− □
2

5. Solve the problems using the standard algorithm.

a. 454 ÷ 3
b. 192 ÷ 6
c. 778 ÷ 2

Work area

d. 240 ÷ 6
e. 414 ÷ 4
f. 761 ÷ 6

Work area

g. 368 ÷ 3
h. 1,304 ÷ 4
i. 4,858 ÷ 4

Work area

j. 3,650 ÷ 5
k. 1,500 ÷ 5
l. 5,765 ÷ 5

Work area

m. 2,534 ÷ 7
n. 2,920 ÷ 8
o. 3,287 ÷ 9

Work area

6. If you had 52 sandwiches to put into 4 lunch boxes.
, how many sandwiches would be put into each box if you divided them equally ?

7. A train has 784 seats for passengers. If there are 7 cars on the train and each car has the same number of seats. , how many passengers can sit in each car ?
Solve the problem using at least two different strategies.

784 ÷ 7

First strategy	Second strategy

8. **Science** Peanuts grow underground in pods. Each pod is attached to the stem. Suppose you dug up 3 peanut plants and gathered 87 pods. How many pods might have been attached to each plant ?

9. There are 154 tourists divided into equal groups. If each group has 7 tourists, how many groups will there be ?

10. Nermine takes the train to the city and back 4 times each month. She travels a total of 376 km per month. How far away is the city ?

11. Sami has 960 beads in 8 different colors to make jewelry. He has the same number of each color. How many beads of each color does Sami have ?

Challenge

12. Youssef divided a number between 55 and 60 by 5. The remainder was 4. What number did Youssef divide ?

Multiple Choice Questions

Choose the correct answer.

1. $366 \div 6 =$ ______
   A. 60
   B. 61
   C. 64
   D. 71

2. $74 \div 4 = 18$ R ______
   A. 0
   B. 1
   C. 2
   D. 3

3. $36 \div 2 = 18$ R ______
   A. 0
   B. 1
   C. 2
   D. 3

4. $1,836 \div 3$ is closer to ______
   A. 6
   B. 60
   C. 600
   D. 6,000

5. $7,158 \div 3$ is closer to ______
   A. 20
   B. 2,000
   C. 3,000
   D. 40,000

6. $736 \div 4$ is closer to ______
   A. 10
   B. 100
   C. 200
   D. 1,000

7. Sara has 270 pieces of ribbon. She wants to give an equal number of them to 8 of her friends. How many pieces of ribbon will each friend receive and how many will be left over?
   A. Each friend will receive 32 pieces. There will be 14 pieces left over.
   B. Each friend will receive 34 pieces. There will be 2 pieces left over.
   C. Each friend will receive 33 pieces. There will be 6 pieces left over.
   D. Each friend will receive 33 pieces. There will be 0 pieces left over.

8. Marawan divides $617 \div 5$ using the partial quotients algorithm. He uses 100 as the quotient on the first step. What is his next step?

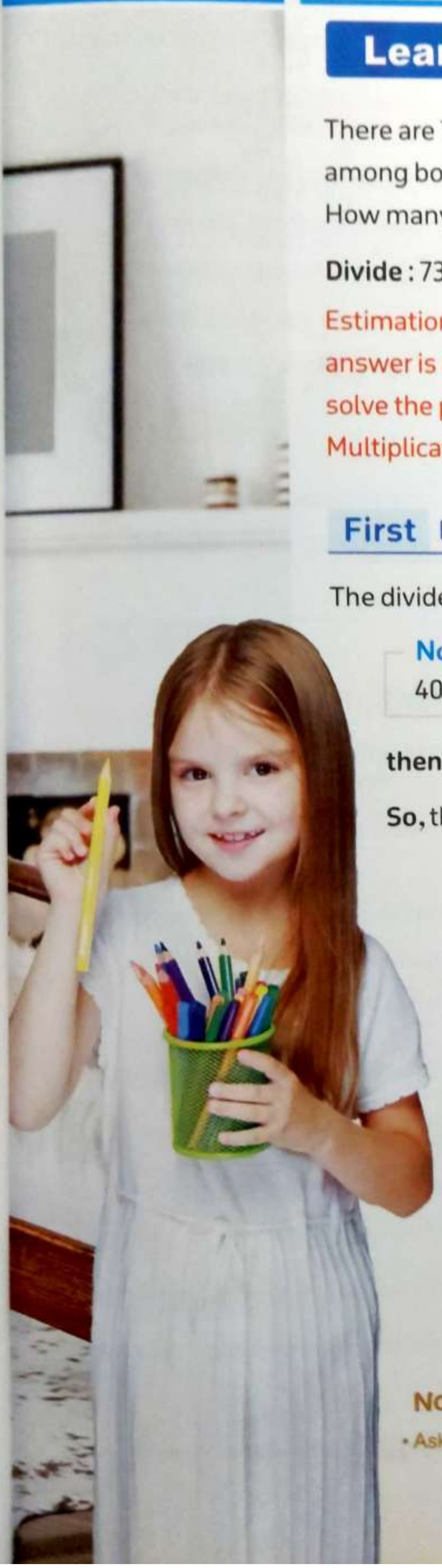
   5 | 6 1 7 | 100

   A. Multiply 100 by 617 and subtract the result from 5.
   B. Multiply 100 by 617 and add the result to 5.
   C. Multiply 100 by 5 and subtract the result from 617.
   D. Multiply 100 by 5 and add the result to 617.

Lesson
5

7-15 Division and Multiplication
7-16 Solving Challenging Story Problems

Learn The relation between multiplication and division



There are 736 crayons wanted to be divided among boxes. Each box holds 4 crayons. How many boxes are needed ?

Divide : $736 \div 4$

Estimation can help decide whether an answer is reasonable. Division can help solve the problem.
Multiplication can help check the answer.

Known that

Multiplication and division by the same number are opposite operations or inverse operations. One operation undoes the other.

First Estimate the quotient

The dividend 736 is between 400 and 800

Note that

400 and 800 are multiples of 4

then : $400 \div 4 = 100$ and $800 \div 4 = 200$

So, the quotient is between 100 and 200

Algorithm strategy

```
    1 8 4
 4 |7 3 6
  - 4
    3 3
  - 3 2
      1 6
  -   1 6
      0 0
```

Second Divide 736 ÷ 4

The number of boxes $= 736 \div 4$

$= 184$ boxes

The answer is reasonable.

Partial strategy

```
    1 8 4
 ×      4
 --------
      1 6
  +  3 2 0
  +  4 0 0
 --------
    7 3 6
```

Third Multiply to check

$184 \times 4 = 736$

So, the needed boxes are 184 boxes

Notes for parents :

- Ask your child to tell you what is the relation between multiplication and division.

Example 1

Write the division problem that matches the multiplication problem.

a.
$$\begin{array}{r} 34 \\ \times \quad 2 \\ \hline 8 \\ +\ 60 \\ \hline 68 \end{array}$$

b.
$$\begin{array}{r} 518 \\ \times \quad 3 \\ \hline 24 \\ +\quad 30 \\ +\ 1,500 \\ \hline 1,554 \end{array}$$

c.
$$\begin{array}{r} 908 \\ \times \quad 7 \\ \hline 56 \\ +\quad 0 \\ +\ 6,300 \\ \hline 6,356 \end{array}$$

Solution

a. $68 \div 2 = 34$

b. $1,554 \div 3 = 518$

c. $6,356 \div 7 = 908$

Example 2

Write the division problem that matches the multiplication problem.

a. $14 \times 2 = 28$

b. $161 \times 5 = 805$

c. $105 \times 7 = 735$

d. $320 \times 6 = 1,920$

Solution

a. $28 \div 2 = 14$

b. $805 \div 5 = 161$

c. $735 \div 7 = 105$

d. $1,920 \div 6 = 320$

Check your understanding

Write the division problem that matches the multiplication problem.

☐ ÷ ☐ = ☐

$$\begin{array}{r} 27 \\ \times \quad 6 \\ \hline 42 \\ +\ 120 \\ \hline 162 \end{array}$$

Notes for parents :

- Ask your child to explain how can he/she uses the relation between multiplication and division to solve multiplication and division problems.

Learn Solving challenging story problems

Here are some guided steps you may use when solving problems.

- Read to understand
- Plan
- Solve
- Check

Read to understand

- Read the story loudly more than one time carefully.
- Identify the details and quantities given.
- Identify the hidden question (if exists).
- Search for key words.

Plan

- Decide the operation (+ , – , × , ÷).
- Decide the strategy you can use to solve the problem.

Solve

- Solve the hidden question (if exists).
- How can you use the strategy to solve the problem ?

Check

- How do you know your answer is correct ?
- What other strategy could you use to solve the problem ?

Example 3

Read the following problem carefully. Solve the problem.

Sandy bought 5 packs of crayons. There are 24 crayons in each of those packs. She also had 6 smaller packs of crayons. There are 12 crayons in each of those.

Sandy wanted to bring all her crayons to school and give them to 8 of her friends.

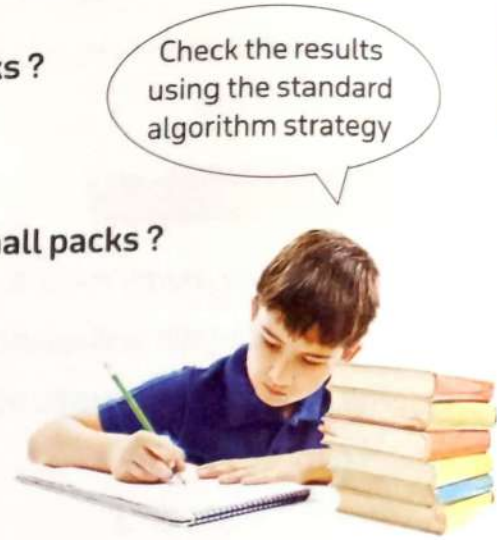
How many crayons will each friend get ?

• Remind your child that multistep problem is a problem that involves more than one operation.

Solution

First hidden questions : **How many crayons in the 5 packs ?**

The number of crayons = 5 × 24 = 120 crayons.



Second hidden question : **How many crayons in the 6 small packs ?**

The number of crayons = 6 × 12 = 72 crayons.

Third hidden question : **How many crayons in all ?**

The number of all crayons = 120 + 72 = 192 crayons.

The problem : **How many crayons will each friend get ?**

The number of crayons = 192 ÷ 8 = 24 crayons.

Short way :

$$[(5 \times 24) + (6 \times 12)] \div 8 = (120 + 72) \div 8$$

$$= 192 \div 8 = 24 \text{ crayons}$$

Check your understanding

Maged has 293 stickers. Amgad has 5 times as many as Maged. Shady has 699 fewer than Amgad. How many stickers does Shady have ?

Amgad has = ☐ × ☐ = ☐ stickers.

Shady has = ☐ − ☐ = ☐ stickers.

Notes for parents :

- Some word problems have hidden question or questions that must be answered before you can solve the problem. You have to determine what operation to use and what strategies will you use to ... how to solve the problem.

Exercise 5

7-15 Division and Multiplication
7-16 Solving Challenging Story Problems

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING From the school book

1. Write the division problem that matches the multiplication problem.

a.

$$\begin{array}{r} 48 \\ \times \quad 6 \\ \hline 48 \\ +240 \\ \hline 288 \end{array}$$

___ ÷ ___ = ___

b.

$$\begin{array}{r} 75 \\ \times \quad 4 \\ \hline 20 \\ +280 \\ \hline 300 \end{array}$$

___ ÷ ___ = ___

c.

$$\begin{array}{r} 162 \\ \times \quad 8 \\ \hline 16 \\ +\quad 480 \\ +\quad 800 \\ \hline 1,296 \end{array}$$

___ ÷ ___ = ___

d.

$$\begin{array}{r} 615 \\ \times \quad 9 \\ \hline 45 \\ +\quad 90 \\ +5,400 \\ \hline 5,535 \end{array}$$

___ ÷ ___ = ___

2. Write the division problem that matches the multiplication problem.

a. 53 × 6 = 318

___ ÷ ___ = ___

b. 623 × 3 = 1,869

___ ÷ ___ = ___

c. 325 × 4 = 1,300

___ ÷ ___ = ___

d. 505 × 5 = 2,525

___ ÷ ___ = ___

e. 42 × 7 = ___

___ ÷ ___ = ___

f. 93 × 9 = ___

___ ÷ ___ = ___

g. 173 × 6 = ___

___ ÷ ___ = ___

h. 349 × 8 = ___

___ ÷ ___ = ___

3. Place Value and the Quotient : First, circle the problems you think will have a quotient with fewer digits than the dividend. Then, estimate the quotient and solve each problem using the standard algorithm for division. Think about where to place the first digit in the quotient.

a. 214 ÷ 2

The quotient is between ______ and ______

Solution : ______

b. 834 ÷ 3

The quotient is between ______ and ______

Solution : ______

c. 346 ÷ 5

The quotient is between ______ and ______

Solution : ______

d. 562 ÷ 8

The quotient is between ______ and ______

Solution : ______

e. 1,266 ÷ 6

The quotient is between ______ and ______

Solution : ______

f. 1,632 ÷ 4

The quotient is between ______ and ______

Solution : ______

g. 1,429 ÷ 7

The quotient is between ______ and ______

Solution : ______

h. 4,590 ÷ 3

The quotient is between ______ and ______

Solution : ______

4. Solve the following problems. You may use multiplication to check your answer.

a. 156 ÷ 4 = ______

b. 219 ÷ 3 = ______

c. 27 ÷ 5 = ______

d. 583 ÷ 6 = ______

e. 1,545 ÷ 5 = ______

f. 2,704 ÷ 3 = ______

g. 6,524 ÷ 4 = ______

h. 3,017 ÷ 3 = ______

i. 534 ÷ 6 = ______

j. 8,579 ÷ 9 = ______

5. Solve the following story problems.

a. Yahia placed 21 paints equally on 3 tables.
How many paints were placed on each table ?

______
______
______

Math Hint
Some problems have more than one hidden question. Read and think carefully

b. Sarah re
How ma

c. Ahmed
plants,
How m

d. Ahme
Satur
How r

e. H
Hala

f. C
coll
rec
Ho

g. A
T

b. Sarah received 352 L.E. for her birthday. She found some toys that cost 8 L.E. each. How many toys could she buy ?

c. Ahmed and his mom want to plant a garden. They buy 35 tomato plants, 16 carrot plants, and 9 beet plants. They want to put the plants into rows of 6.
How many plants will be in each row ?

d. Ahmed serves ice cream at a local ice cream shop. He sold 19 ice cream cones on Saturday, 27 ice cream cones on Sunday, and 153 ice cream cones for the entire week.
How many ice cream cones did Ahmed sell in all ?

e. Hady has 347 marbles. Kamal has 4 times as many as Hady.
Hala has 799 fewer than Kamal. How many marbles does Hala have ?

f. Over the course of 20 weeks, Sarah collected 14 kilograms of cans to recycle, Saleem collected 6 times as much as Sarah. The cans need to be put into bags to take to the recycling center. Each bag holds 7 kilograms of cans.
How many bags will Saleem need for his cans ?

g. A teacher bought 12 packs of crayons. Seven of the packs had 9 crayons in each.
The other 5 packs had 10 crayons in each. How many crayons did the teacher buy in all ?

Multiple Choice Questions

Choose the correct answer.

1. The division equation that matches $126 \times 3 = 378$ is ______

A. $378 - 3 = 126$
B. $378 + 3 = 126$
C. $378 \div 3 = 126$
D. $378 \times 3 = 126$

2. Which expression can be used to check the solution of the opposite division problem?

```
   2 8 R4
9 | 2 5 6
  - 1 8
    ---
      7 6
    - 7 2
    -----
        4
```

A. 28×9
B. 28×256
C. $28 \times 9 + 4$
D. $28 \times 256 + 4$

3. In the problem $1,866 \div 6$, the quotient is between ______ and ______

A. 100 and 200
B. 200 and 300
C. 300 and 400
D. 400 and 500

4. What is the value of ? in the opposite division problem?

```
      ?
4 | 2 9 2
  - 2 8
    ---
      1 2
    - 1 2
    -----
        0
```

A. 73
B. 73 R 1
C. 73 R 2
D. 73 R 3

5. $48 \div 7 =$ ______

A. 6 R 4 B. 6 R 5
C. 6 R 6 D. 7 R 1

6. $320 \div 4 =$ ______

A. 80 B. 90
C. 80 R 3 D. 90 R 3

7. $2,014 \div 2 =$ ______

A. 17 B. 107
C. 1,007 D. 10,007

8. $2,748 \div 9 =$ ______

A. 304 R 2 B. 304 R 3
C. 305 R 2 D. 305 R 3

9. Hazim has 531 marbles. Ahmed has 3 times as many as Hazim. Rana has 689 fewer than Ahmed.

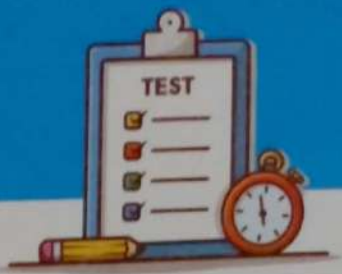
How many marbles does Rana have?

A. 1,593 marbles B. 215 marbles
C. 904 marbles D. 2,282 marbles

10. Dina distributed 965 pounds among her 5 sons. If she gave each son 150 pounds more as a present, what is the share of each son?

A. 43 pounds B. 143 pounds
C. 193 pounds D. 343 pounds

Unit Seven Assessments



Model 1

1. Choose the correct answer.

a. $30 \div 4 =$ ______

A. 7 R 1 B. 6 R 2 C. 7 R 2 D. 7 R 3

b. $255 \div 5 =$ ______

A. 11 B. 50 C. 51 D. 55

c. $9{,}342 \div 3$ is closer to ______

A. 300 B. 3,000 C. 4,000 D. 5,000

2. Complete the following.

a. The quotient of $3{,}019 \div 3$ equals ______

b. ______ $\div 7 = 800$

c. By dividing $76 \div 2$ using the standard algorithm, the first division is ______ $\div$ ______ , the next division is ______ $\div$ ______ , and the quotient is ______

3. Put (✓) to the correct statement and (✗) to the incorrect statement.

a. $180 \div 2 = 9$ [ ]

b. $36 \div 6 = 10$ and the remainder $= 3$ [ ]

c. $35{,}000 \div 5 = 7{,}000$ [ ]

4. Match.

a.	$88 \div 3$	1.	71×2
b.	$360 \div 4$	2.	$150 + 7$
c.	$568 \div 4$	3.	$176 \div 6$
d.	$785 \div 5$	4.	$30 + 4$
e.	$102 \div 3$	5.	30×3

5. A train has 896 seats for passengers, if there are 8 carriges on the train and each carrige has the same number of seats, how many passengers can sit in each carrige ?

Model 2

1. Choose the correct answer.

a. $6300 \div 9 =$ ______

A. 70 B. 700 C. 7,000 D. 70,000

b. $42 \div 6 =$ ______

A. 7 R 0 B. 7 R 2 C. 6 R 0 D. 6 R 1

c. If $973 \div 3 = 324$ R 1, then the dividend is ______

A. 3 B. 325 C. 973 D. 322

2. Complete the following.

a. $3,856 \div 4 =$ ______

b. The quotient of $736 \div 6$ is closer to ______

c. The division problem in the opposite area model is ______ $\div$ ______

5	$5 \times 20 = 100$	$5 \times 5 = 25$
	20	5

3. Put (✓) to the correct statement and (✗) to the incorrect statement.

a. If $1,095 \div 3 = 365$, then the divisor is 3 [ ]

b. $24 \div 24 = 6$ [ ]

c. $240 \div 2 = 120$ [ ]

4. Match.

a.	$35 \div 3$	1.	2×100
b.	$600 \div 4$	2.	73
c.	$600 \div 3$	3.	122 R 1
d.	$367 \div 3$	4.	11 R 2
e.	$365 \div 5$	5.	150

5. A runner covers 4,488 meters in 6 hours. Calculate the distance he covers in one hour.

Theme 2 | **Mathematical Operations and Algebraic Thinking**

UNIT 8 Order of Operations

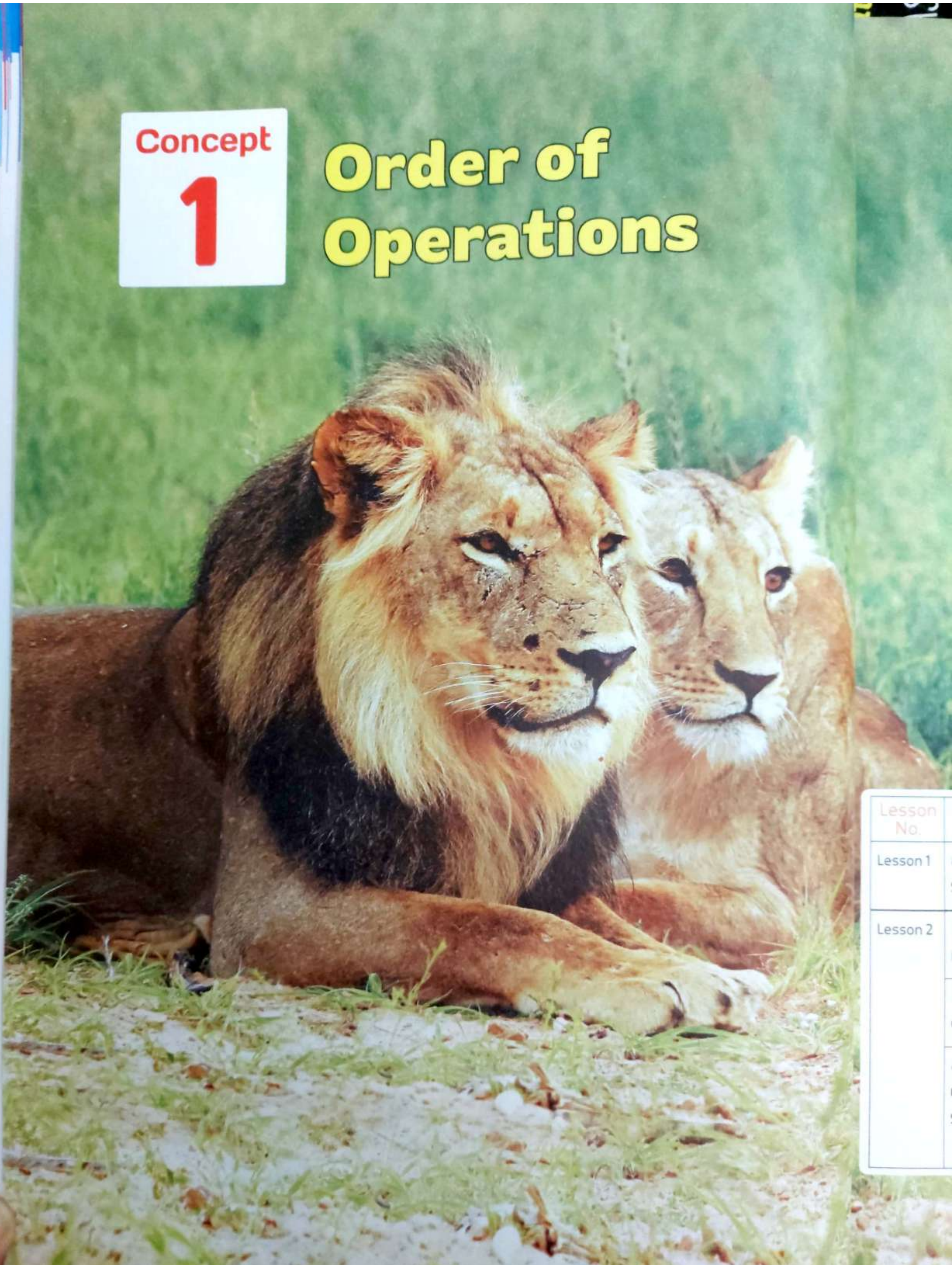
» **Concept 1 :** Order of Operations

Fast Fact

Rhino is one of the biggest animals in the world which can weigh a massive 2,500 kg - That's the weight of 30 men ! Sadly ! it's estimated that there are only 29,000 rhinos left in the wild, compared to 500,000 at the beginning of the 20^{th} century.

Concept 1

Order of Operations



Fast Fact

Lion often known as the "King of the jungle".
Lions usually lives in groups of 10 or 15 animals.
A female lion needs 5 kg of meat a day.
A male needs 7 kg or more a day.
How many kilograms do 3 females lion and 2 males need a day ?

Concept Overview

In concept 1 :

Order of Operations, students learn the standard order of operations and apply it to solve bare number problems and story problems. Students begin by reviewing problem-solving strategies and then solve problems involving two operations. They extend their understanding to solve problems with multiple operations and complex story problems. Students recall the use of parentheses and learn the role of parentheses in the order of operations. Students are given a variety of opportunities to practice solving problems with multiple operations, including writing their own story problems to match a given equation.

Lesson No.	Lesson Name	Vocabulary Terms	Learning Objectives
Lesson 1	8-1 Problem - Solving Strategies	Efficient - Effective	• Students will apply strategies to solve addition, subtraction, multiplication, and division problems.
Lesson 2	8-2 Which Comes First ?	Order of operations	• Students will use the order of operations to solve equations with two operations.
	8-3 Order of Operations	Order of operations	• Students will use the order of operations to solve equations with multiple operations.
	8-4 The Order of Operations and Story Problems	Efficient - Parentheses	• Students will use the order of operations to solve equations with multiple operations. • Students will write and solve an equation to represent a multistep story problem.

Lesson 1

8-1 Problem - Solving Strategies

Learn

- In unit two, you have learned different ways to solve addition and subtraction problems.
- In unit seven, you have learned different ways to solve multiplication and division problems.
- In this lesson, you will practice strategies for addition, subtraction, multiplication and division.

Problem solving steps

Understand

- What are you asked to find ?
- What information will you use ?

Plan

- What strategies can you use to solve the problem ?

Solve

- How can you use the strategy to solve the problem ?

Look Back

- What other strategy could you use ?

Remember

Addition and Subtraction Strategies

- Estimate.
- Compensation strategy.
- Break up and bridge strategy.
- Add to subtract strategy.
- Regrouping strategy.
- Counting on and counting down strategy.

Remember

Multiplication and Division Strategies

- Area model strategy.
- Partial product and partial quotient algorithm.
- Standard algorithm.

Notes for parents :

- Revise with your child the different strategies for addition, subtraction, multiplication and division.

Here are some problem-solving strategies

First Addition

Find : 255 + 416

a. Compensation Strategy

```
  255            255
+ 416          + 420
               -----
                 675
               -   4
               -----
                 671
```

Add 4 to 416 to make 420

Subtract 4 to compensate for adding 4 extra

So, 255 + 416 = 671

In a short way :

255 + 416 = (255 + 420) – 4 = 675 – 4 = 671

b. Break up and Bridge Strategy

255 = 200 + 50 + 5

416 = 400 + 10 + 6

255 + 416 =

(200 + 400) + (50 + 10) + (5 + 6)

= 600 + 60 + 11

= 671

c. Addition Algorithm

```
   (1)
  2 5 5
+ 4 1 6
-------
  6 7 1
```

Second Subtraction

Find : 254 – 195

a. Add to subtract strategy

254 – 195

195 + 5 = 200

200 + 50 = 250

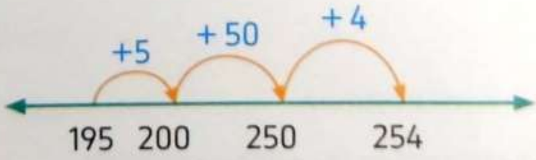
250 + 4 = 254

So, 5 + 50 + 4 = 59

Then : 254 – 195 = 59

b. Counting on using number line with decomposing strategy

254 – 195



5 + 50 + 4 = 59

So, 254 – 195 = 59

c. Subtraction Algorithm

```
 (1)(14)(14)
  2̶  5̶  4̶
-  1  9  5
----------
   0  5  9
```

• Encourage your child to use a strategy he/she is comfortable with.

Third Multiplication

Find : 49 × 56

a. Area model

49 = 40 + 9

56 = 50 + 6

×	40	9
50	2,000	450
6	240	54

49 × 56 = 2,000 + 450 + 240 + 54 = 2,744

b. Partial products

```
       5 6
  ×    4 9
  --------
       5 4  ← (9 × 6)
  +  4 5 0  ← (9 × 50)
  +  2 4 0  ← (40 × 6)
  + 2, 0 0 0 ← (40 × 50)
  --------
    2, 7 4 4
```

c. Standard Algorithm

```
        5 6
  ×     4 9
  ---------
      5 0 4
  + 2, 2 4 0
  ---------
   2, 7 4 4
```

Fourth Division

Find : 896 ÷ 4

a. Partial quotient Algorithm

```
4 | 8 9 6 | 200
  - 8 0 0 |
  -------
      9 6 | 20
  -   8 0 |
  -------
      1 6 | 4
  -   1 6 |
  -------
      0 0
```

896 ÷ 4 = 200 + 20 + 4 = 224

b. Division model

	4 × 200 = 800	4 × 20 = 80	4 × 4 = 16
4	200	20	4

896 ÷ 4 = 200 + 20 + 4 = 224

c. Standard Algorithm

```
     2 2 4
  4 |8 9 6
   - 8
   -----
     0 9
   -   8
   -----
       1 6
   -   1 6
   -------
       0 0
```

Example

Estimate and then solve each problem.

Practice using efficient strategies for each operation.

a. 3,423 − 859 = ______ Estimate ______

b. 2,156 + 1,372 = ______ Estimate ______

c. 4 × 116 = ______ Estimate ______

d. 2,592 ÷ 8 = ______ Estimate ______

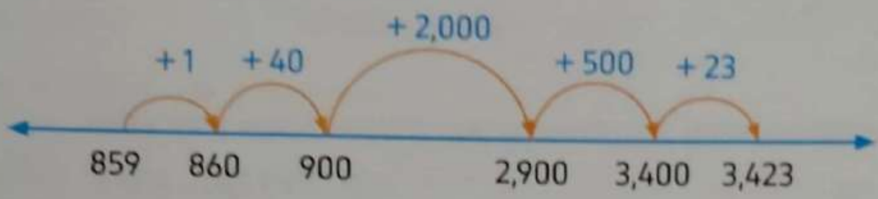
Notes for parents :

- Ask your child to use different strategies to find the answer in different ways.

Solution

a. **Estimation :** 3,423 − 859 = 3,400 − 900 = 2,500

Solving :



3,423 − 859 = 1 + 40 + 2,000 + 500 + 23 = 2,564

b. **Estimation :** 2,156 + 1,372 = 2,200 + 1,400 = 3,600

Solving : 2,156 + 1,372 = 2,000 + 100 + 50 + 6

+ 1,000 + 300 + 70 + 2

3,000 + 400 + 120 + 8 = 3,528

c. **Estimation :** 4 × 116 = 4 × 100 = 400

Solving :

	100	10	6
4	4 × 100 = 400	4 × 10 = 40	4×6=24

4 × 116 = 400 + 40 + 24 = 464

d. **Estimation :** 2,592 ÷ 8 = 3,000 ÷ 10 = 300

Solving : 2,592 ÷ 8 = ______

```
    3 2 4
8 ) 2,5 9 2
  - 2 4
      1 9
    - 1 6
        3 2
      - 3 2
          0
```

So, 2,592 ÷ 8 = 324

Check your understanding

Solve using any strategy. Show your work.

a. 18 × 52 = ______

b. 2,451 − 722 = ______

c. 561 ÷ 4 = ______

d. 8,902 + 1,725 = ______

• Ask your child to use estimation to check his/her answers.

Exercise 6

8-1 Problem - Solving Strategies

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING

📖 From the school book

1. Solve the problems using any strategy you choose. Show your work.

a. 📖 349 + 199 = ______

b. 📖 9,230 − 455 = ______

c. 📖 62 × 18 = ______

d. 📖 678 ÷ 6 = ______

e. 📖 1,789 + 472 = ______

f. 📖 5 × 472 = ______

g. 📖 725 ÷ 8 = ______

h. 📖 8,572 − 188 = ______

i. 7,641 − 2,531 = ______

j. 436 + 98 = ______

k. 34 × 15 = ______

l. 858 ÷ 6 = ______

m. 2,056 ÷ 8 = ______

n. 7 × 361 = ______

o. 1,399 + 7,235 = ______

p. 7,000 − 3,499 = ______

q. 7,341 + 1,532 = ______

r. 3,159 ÷ 9 = ______

s. 25 × 13 = ______

t. 3,240 − 1,651 = ______

2. Put (✓) for the correct statement and (✗) for the incorrect one.

a. 3 × 742 = 2,226 (   )

b. 1,872 − 329 = 1,443 (   )

c. 216 ÷ 6 = 36 (   )

d. 435 ÷ 7 = 62 R 1 (   )

e. 24 × 16 = 484 (   )

f. 3,614 + 968 = 4,582 (   )

3. Estimate and then solve each problem. Practice using efficient strategies for each operation.

a. $5{,}612 - 56 =$ ______ Estimate ______

b. $3{,}267 - 1{,}892 =$ ______ Estimate ______

c. $6 \times 127 =$ ______ Estimate ______

d. $9{,}284 + 371 =$ ______ Estimate ______

e. $1{,}892 \div 9 =$ ______ Estimate ______

f. $42 \times 70 =$ ______ Estimate ______

g. $9{,}036 - 1{,}425 =$ ______ Estimate ______

h. $268 \div 7 =$ ______ Estimate ______

i. $3{,}451 + 2{,}513 =$ ______ Estimate ______

j. $9{,}876 - 5{,}431 =$ ______ Estimate ______

k. $5 \times 176 =$ ______ Estimate ______

l. $4{,}067 \div 7 =$ ______ Estimate ______

m. $2{,}112 \div 4 =$ ______ Estimate ______

n. $356 + 199 =$ ______ Estimate ______

o. $2{,}531 - 1{,}421 =$ ______ Estimate ______

p. $31 \times 40 =$ ______ Estimate ______

q. $139 \times 6 =$ ______ Estimate ______

r. $1{,}584 \div 3 =$ ______ Estimate ______

s. $2{,}632 \div 4 =$ ______ Estimate ______

t. $539 + 153 =$ ______ Estimate ______

Multiple Choice Questions

Lesson 2

Choose the correct answer.

1. Find the sum.

$$\begin{array}{r} 165,285 \\ +\ 724,315 \\ \hline \end{array}$$

A. 888,600
B. 889,570
C. 889,590
D. 889,600

2. Find the difference.

$$\begin{array}{r} 521,647 \\ -\ 214,657 \\ \hline \end{array}$$

A. 314,090
B. 306,090
C. 306,990
D. 336,990

3. Find the difference.

$$\begin{array}{r} 647,289 \\ -\ 493,522 \\ \hline \end{array}$$

A. 153,767
B. 154,807
C. 154,767
D. 153,807

4. Find the sum.

$$\begin{array}{r} 528,420 \\ +\ 276,952 \\ \hline \end{array}$$

A. 804,378
B. 804,372
C. 805,372
D. 805,472

5. Find the product.

$$\begin{array}{r} 19 \\ \times\ 62 \\ \hline \end{array}$$

A. 1,140
B. 114
C. 152
D. 1,178

6. Find the quotient.

$7 \overline{)2,160}$

A. 218 R 4
B. 38 R 4
C. 308 R 4
D. 58 R 4

7. Find the quotient.

$6 \overline{)336}$

A. 50
B. 56
C. 49 R 98
D. 48 R 12

8. Find the product.

$$\begin{array}{r} 18 \\ \times\ 39 \\ \hline \end{array}$$

A. 216
B. 720
C. 702
D. 183

9. Find the sum.

$$\begin{array}{r} 34,751 \\ +\ 13,143 \\ \hline \end{array}$$

A. 21,608
B. 47,894
C. 47,614
D. 21,694

10. Find the difference.

$$\begin{array}{r} 80,000 \\ -\ 55,555 \\ \hline \end{array}$$

A. 35,555
B. 24,445
C. 135,555
D. 25,555

Lesson 2

8-2 Which Comes First ?
8-3 Order of Operations
8-4 The Order of Operations and Story Problems

Learn Which comes first ? Order of operations

Find : $6 - 2 \div 2$.

- Try solving the problem by subtracting first and then dividing. What do you get ?
- Try solving the problem by dividing first and then subtracting. What do you get ?

One Way

Think : $6 - 2 = 4$

$6 - 2 \div 2 = 4 \div 2$

$= 2$

Another Way

Think : $2 \div 2 = 1$

$6 - 2 \div 2 = 6 - 1$

$= 5$

There seem to be two correct answers.

When solving problems with more than one operation, you need to know what operation to do first. A special set of rules, called the order of operations, can be used to solve expressions with more than one operation.

Order of Operations

First, perform any operations in parentheses.

Next, multiply and divide from left to right.

Then, add and subtract from left to right.

So, the correct answer to $6 - 2 \div 2$ is 5

Notes for parents :

- Ask your child which operation comes first when solving the problems : $12 \div (4 - 1)$ and $6 + 4 \times 5$.

Example 1

Follow the order of operations to find the value of each expression :

a. $(8-2)\times 6 =$ ______ b. $5+10\div 5 =$ ______ c. $3\times(4+6) =$ ______

d. $6-4\div 2 =$ ______ e. $(5+3)\div 2 =$ ______ f. $14\div 7\times 2 =$ ______

Solution

a. $(8-2)\times 6$
$= 6\times 6$
$= 36$

Do what is in the parentheses first, next multiply.

b. $5+10\div 5$
$= 5+2$
$= 7$

There are no parentheses, so divide first. Then add.

c. $3\times(4+6)$
$= 3\times 10$
$= 30$

Do what is in the parentheses first, next multiply.

d. $6-4\div 2$
$= 6-2$
$= 4$

There are no parentheses, so divide first. Then subtract

e. $(5+3)\div 2$
$= 8\div 2$
$= 4$

Do what is in the parentheses first, next divide.

f. $14\div 7\times 2$
$= 2\times 2$
$= 4$

There are no parentheses, so divide and multiply from left to right.

Example 2

Follow the order of operations to find the result :

a. $15+24\div 8-2 =$ ______ b. $15+24\div(8-2) =$ ______

Solution

a. $15+24\div 8-2$
$= 15+3-2$
$= 18-2$
$= 16$

There are no parentheses, so divide from left to right, Then add and subtract from left to right.

b. $15+24\div(8-2)$
$= 15+24\div 6$
$= 15+4$
$= 19$

Do what is in the parentheses first, next divide. Then add.

Check your understanding

Use the order of operations to find the value of each expression.

a. $1+6\times 7$

______

______

b. $(16+4)\div 2$

______

______

c. $2\times 5-8\div 4$

______

______

Notes for parents :

• Ask your child why the values of $15+24\div 8-2$ and $15+24\div(8-2)$ are different.

Learn The order of operations and story problems

Read to Understand
Plan
Solve
Look back and check

Example 3

Maged walked 20 kilometers every week for 3 weeks.

The next week he walked 15 kilometers.

How many kilometers did he walk over those 4 weeks.

Solution

What he walked = 20 × 3 + 15

= 60 + 15 = 75 kilometers.

Example 4

Mohammed ran 8 kilometers on Saturday and twice that amount on Sunday. He ran 6 kilometers less on Monday than he did on Sunday.

How many kilometers did he run on Monday ?

Solution

What he ran = 8 × 2 – 6

= 16 – 6 = 10 kilometers.

Example 5

There were 86 people on the pitch. 9 of them were coaches, and the rest wanted to play football.
If they wanted to form teams of 11,
how many teams could they make ?

Solution

Number of teams = (86 – 9) ÷ 11

= 77 ÷ 11 = 7 teams.

Note that
You should put parentheses to subtract first

Check your understanding

Noha bought three books for 20 L.E. each. If she had 100 L.E., how much money is left with Noha ?

....

....

• Ask your child to read each problem carefully and plane to solve each one, then ask him/her to look back to check his/her answer.

Puzzles !

Solve the following puzzles. The pictures in each puzzle represent numbers.

a.

□ + □ + □ = 15

□ + □ + ○ = 20

△ + ○ + ○ = 40

△ + ○ × □ = ___

b.

☆ + ☆ + ☆ = 12

☆ + ◎ + ☆ = 14

◎ + ♡ + ♡ = 10

♡♡ × ☆ + ◎◎ = ___

Solution

The same pictures must represent the same number.

a.

[5] + [5] + [5] = 15

[5] + [5] + (10) = 20

△20 + (10) + (10) = 40

△20 + (10) × [5] = 70

Rectangle = 5

Circle = 10

Triangle = 20

$20 + 10 \times 5 = 20 + 50 = 70$

b.

☆4 + ☆4 + ☆4 = 12

☆4 + ◎6 + ☆4 = 14

◎6 + ♡2 + ♡2 = 10

♡2 ♡2 × ☆4 + ◎6 ◎6 = 28

Star = 4

Sun = 6

Heart = 2

$4 \times 4 + 12 = 16 + 12 = 28$

Note

The two pictures grouped together means to double the value of that picture.

Notes for parents :

- Help your child solve each puzzle. He/She should find the value of each picture, then solve the puzzle following the order of operations.

Exercise 7

8-2 Which Comes First ?
8-3 Order of Operations
8-4 The Order of Operations and Story Problems

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING — From the school book

1. Write correct if the operations are listed in the correct order.
If not, write the correct order of operations.

a. $(9+3)\times 4$ Multiply, add

b. $2\times(3+4)$ Add, multiply

c. $20\div(10-6)$ Subtract, divide

d. $27-(14\div 2)$ Subtract, divide

e. $32-8\div 2$ Divide, subtract

f. $(23-11)\div 4+2$ Divide, subtract, add

2. Follow the standard order of operations to solve.

a. $8\times 2+13=$ ______

b. $5\times 6-12=$ ______

c. $200-80\times 2=$ ______

d. $5+8\div 2=$ ______

e. $20\div 5+5=$ ______

f. $80\div 8-7=$ ______

g. $5+5\times 5=$ ______

h. $(30-6)\div 3=$ ______

i. $81+(54\div 6)=$ ______

j. $(28-16)\times 4=$ ______

3. Solve the problems. Show your work.

a. $18\times 2+8-3=$ ______

b. $73-60+15\div 3=$ ______

c. $4+4+5\times 10=$ ______

d. $3\times 3+5+5=$ ______

e. $10\times 3+15\div 5=$ ______

f. $89+2-4\times 3=$ ______

g. $30 + 2 \times (6 - 4) =$ ______

h. $36 - (4 + 8) \div 4 =$ ______

i. $6 + 32 \div (4 + 4) =$ ______

4. Put (✓) to the correct statement and (X) to the incorrect one.

a. $3 + 18 \div 9 = 5$ [ ]

b. $13 + 36 \div 4 = 19$ [ ]

c. $3 \times (6 - 3) + 2 = 17$ [ ]

d. $7 + 14 \div 7 - 1 = 8$ [ ]

e. $3 \times 6 - (2 + 4) \div 2 = 15$ [ ]

f. $3 + 80 \div 10 - 11 = 1$ [ ]

5. **Find the Answer** Solve each problem. Locate the correct answer and write the equation under it. If the answer is not listed, rewrite the problem under "Other".

$2 + 4 \times 6$	$24 - 8 \div 4 + 6$	$15 \div 5 + 4 + 1$
$48 \div 4 + 9$	$36 \div 9 + 4$	$15 - 7 + 2 + 6$
$7 + 70 \div 10 - 2$	$99 - 10 \times 9 + 7$	$8 \times 2 + 24 - 12$
$49 - 7 \times 6 + 4$	$12 - 72 \div 12 + 2$	$24 \times 36 \div 6 + 2$
$8 \times 3 + 6 + 2$	$80 \div 10 + 6 - 3$	$40 - 7 \times 5 + 2$

8

11

16

28

32

other

6. **Reasoning** Use the numbers listed to make a true number sentence.

a. 2 , 6 , and 5

$\square + \square \times \square = 16$

b. 4 , 12 , and 18

$\square - \square \div \square = 15$

c. 8 , 9 , and 7

$\square \times \square - \square = 47$

7. **Which Does Not Belong ?** Solve the problems. Then, think about which problem does not belong in the set. Highlight or circle the problem you think does not belong and explain your thinking.

a. $6 \times 4 - 4 =$ ______

b. $100 - 80 \times 1 =$ ______

c. $60 + 20 - 50 =$ ______

d. $2{,}356 - 2{,}336 =$ ______

8. **Talk about math**

Explain why the values of $8 + 6 \div 2$ and $(8 + 6) \div 2$ are different.

What is the value of each expression ?

______

______

9. **Who is correct ?**

Saleem and Sarah both solved the problem $74 - 61 + 8 \times 5$.

Saleem says the answer is 105 and Sarah says the answer is 53. Who is correct ?

How do you know ? Help the person who is not correct realize his/her mistake.

______

______

10. **Number talk**

Solve the problems. Then, rewrite each problem more efficiently.

a. $67 + 67 + 67 + 67 + 67 - 15 =$ ______

b. $568 + 78 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 =$ ______

Story problems

11. Solve the following problems. Remember the order of operations.

a. Abdullah loves collecting stamps. He received 246 stamps for his birthday. He kept 25 of the stamps and now he wants to give the rest to 6 of his friends. How many stamps will each friend get if they share them equally ?

b. Maha walked 14 kilometers every day for 2 weeks. The next week she walked 56 kilometers. How many kilometers did she walk over those 3 weeks ?

c. Ashraf has to take the bus to work. It takes 27 minutes to get to the bus stop near his job. Then, he has to walk for 12 minutes from the bus stop to his place of work. How many minutes does Ashraf spend going to work during a 5-day week ?

d. A group of tourists are taking a tour of Alexandria. There are 172 tourists and 8 tour guides in the group. They want to travel to the pyramids in microbuses. Each microbus fits 9 people. How many microbuses will they need in order to get everyone to the pyramids ?

e. Sita wants to bake berry muffins. Each muffin will have 6 berries in it. She buys 198 berries from the store. On the way home, she eats 17 of the berries. How many muffins can she make with the berries she has left ?

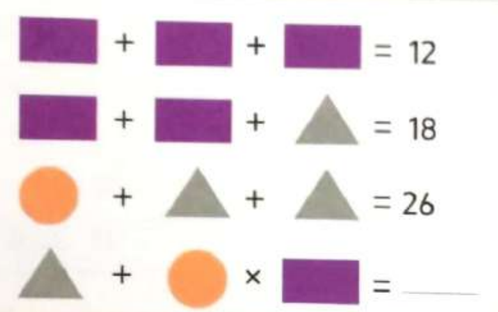
f. There are 194 people at a concert. After the concert, 43 people leave in cars. The remaining people want to take microbuses home. If 9 people can fit on each microbus, how many microbuses are needed to get everyone home from the concert?

g. Bilal buys 6 packages of balloons. Each package contains 18 balloons. He wants to give the balloons to his friends at his birthday party. If he has 8 friends at the party, how many balloons can each friend take home ?.

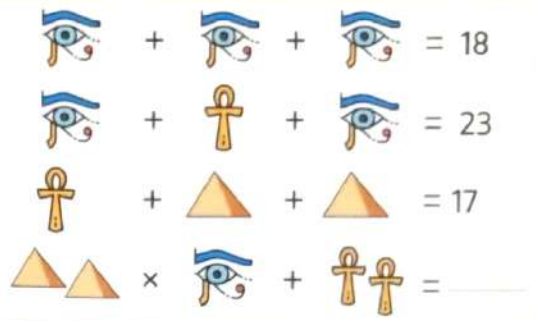
Puzzles

12. Solve each puzzle. When you figure out the number that each picture represents, write the value above the picture. Remember the order of operations.

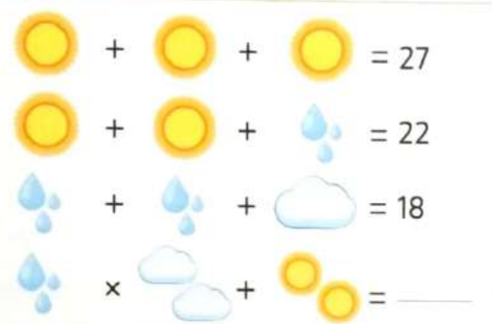
a.



b.



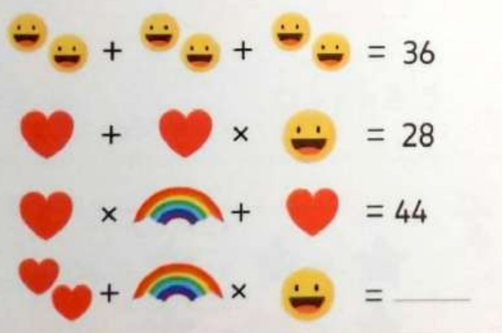
c.



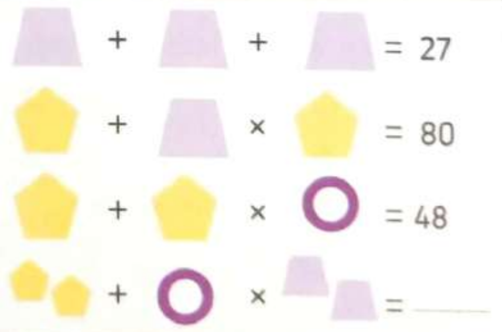
Challenge

13. Solve the puzzles.

a.



b.



14. **Writing my Own problem** Write a story problem that can be represented by $(50 - 36) \div 4$.

____

____

Multiple Choice Questions

Choose the correct answer.

1. $3 \times 16 - 4 =$ ______
   - A. 4
   - B. 12
   - C. 36
   - D. 44

2. $4 + 2 \times (10 - 4) =$ ______
   - A. 4
   - B. 8
   - C. 12
   - D. 16

3. $(16 + 8) \div 4 + 2 =$ ______
   - A. 4
   - B. 6
   - C. 8
   - D. 20

4. $4 \div 1 + 8 \times 2 =$ ______
   - A. 20
   - B. 24
   - C. 1
   - D. zero

5. $5 + 3 \times 6 - 2 =$ ______
   - A. 46
   - B. 32
   - C. 21
   - D. 17

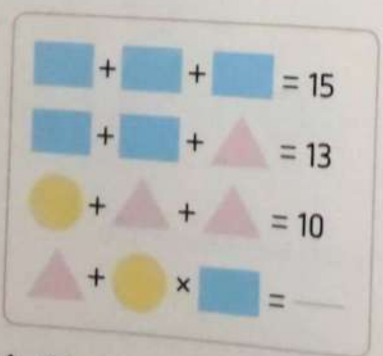
6. Which is the first step in evaluating $18 - 15 + 3 \times 8 - 2$?
   - A. $18 - 15$
   - B. $15 + 3$
   - C. 3×8
   - D. $8 - 2$

7. Which expression can be used to solve the problem below?

   On a recent math test, Maher scored 3 points for each of the 18 multiple choice questions he answered correctly and 5 points for each of the 6 short response questions he answered correctly. What was his total score on the test?
   - A. $3 + 5 \times 18 + 6$
   - B. $3 + 18 \times 5 + 6$
   - C. $3 \times 5 + 18 \times 6$
   - D. $3 \times 18 + 5 \times 6$

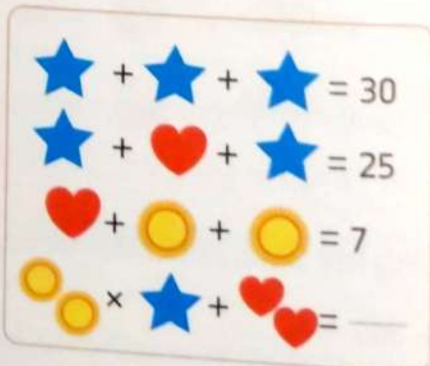
8. $5 + 5 + 5 + 5 + 5 - 12 =$ ______
   - A. $5 \times 6 - 12$
   - B. $20 - 12$
   - C. $5 \times 5 - 12$
   - D. $5 \times 5 + 12$

9.



   - A. 35
   - B. 12
   - C. 345
   - D. 23

10.



   - A. 15
   - B. 40
   - C. 200
   - D. 30

1. Choose the
   a. What is t
   A. 54
   b. What is
   A. 73,3
   c. 8 + 12 ÷
   A. 4

2. Complete
   a. 14 ÷ 7
   c. 349 +

3. Put (✓) t
   a. 20 ÷ 5
   b. The q
   c. 67 + 6

4. Match.
   a. 9,
   b. 15
   c.
   d.
   e.

5. Solve
   a. 67

Unit Eight Assessments

Model 1

1. Choose the correct answer.

a. What is the product of 17×37 ?

A. 54 B. 1,737 C. 629 D. 296

b. What is the difference $70{,}000 - 7{,}777$?

A. 73,333 B. 62,223 C. 77,777 D. 7

c. $8 + 12 \div 4 =$ ....

A. 4 B. 5 C. 10 D. 11

2. Complete the following.

a. $14 \div 7 + 20 =$ ....

b. $(3 + 3) \times 4 - 1 =$ ....

c. $349 + 199 =$ ....

3. Put (✓) to the correct statement and (✗) to the incorrect statement.

a. $20 \div 5 + 5 = 2$ ( )

b. The quotient of $4\overline{)283}$ is 70 R 3 ( )

c. $67 + 67 + 67 + 67 + 67 - 15 = 67 \times 5 - 15$ ( )

4. Match.

a. $9{,}230 - 455$ 1. 8

b. $15 \div 5 + 4 + 1$ 2. 8,775

c. 62×18 3. 6

d. $(5 - 2) \times 2$ 4. 9

e. $5 + 8 \div 2$ 5. 1,116

5. Solve using the order of operations. Show your work.

a. $67 + 3 - 4 \times 5$

b. $7 + (12 - 6) \div 2$

Model 2

1. Choose the correct answer.

a. $200 - 80 \times 2 =$ ______

A. 240 B. 360 C. 282 D. 40

b. $3 + 3 \times 3 =$ ______

A. 6 B. 9 C. 12 D. 333

c. Noha walked 10 kilometers every day for 2 weeks. The next week she walked 60 kilom...

How many kilometers did she walk over those 3 weeks ?

A. 1340 km B. 200 km C. 740 km D. 80 km

2. Complete the following.

a. $5 + 8 \div 2 =$ ______

b. $80 \div 10 + 6 - 3 =$ ______

c. $678 \div 6 =$ ______

3. Put (✓) to the correct statement and (✗) to the incorrect statement.

a. $528,420 + 276,952 = 805,372$ [ ]

b. $18 \times 2 + 8 - 3 = 18 \times 7$ [ ]

c. $2 + 4 \times 6 = 36$ [ ]

4. Match.

a.	$3 + 8 \div 4 - 1$	1.	2380
b.	$6000 - 3620$	2.	27
c.	$7 + (5 - 1) \times 2$	3.	4
d.	$23 + 2 \times 2$	4.	360
e.	20×18	5.	15

5. Solve the problems using any strategy you choose. Show your work.

a. $5,236 + 2,999$

b. 15×24

Theme 3 | Fractions, Decimals, and Proportional Relationships

UNIT 9 Fractions

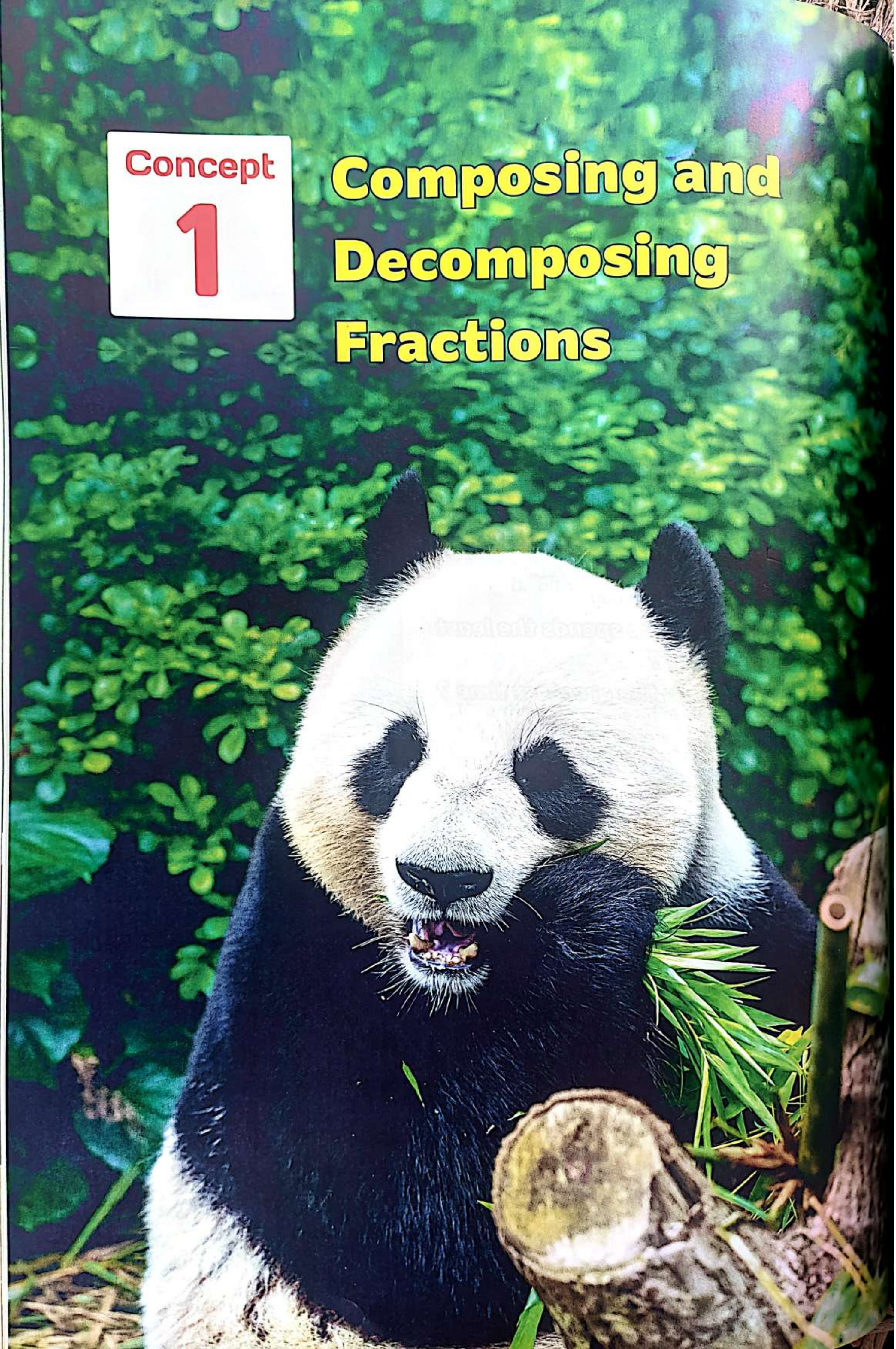
» **Concept 1 :** Composing and decomposing fractions
» **Concept 2 :** Comparing fractions
» **Concept 3 :** Multiplication and fractions

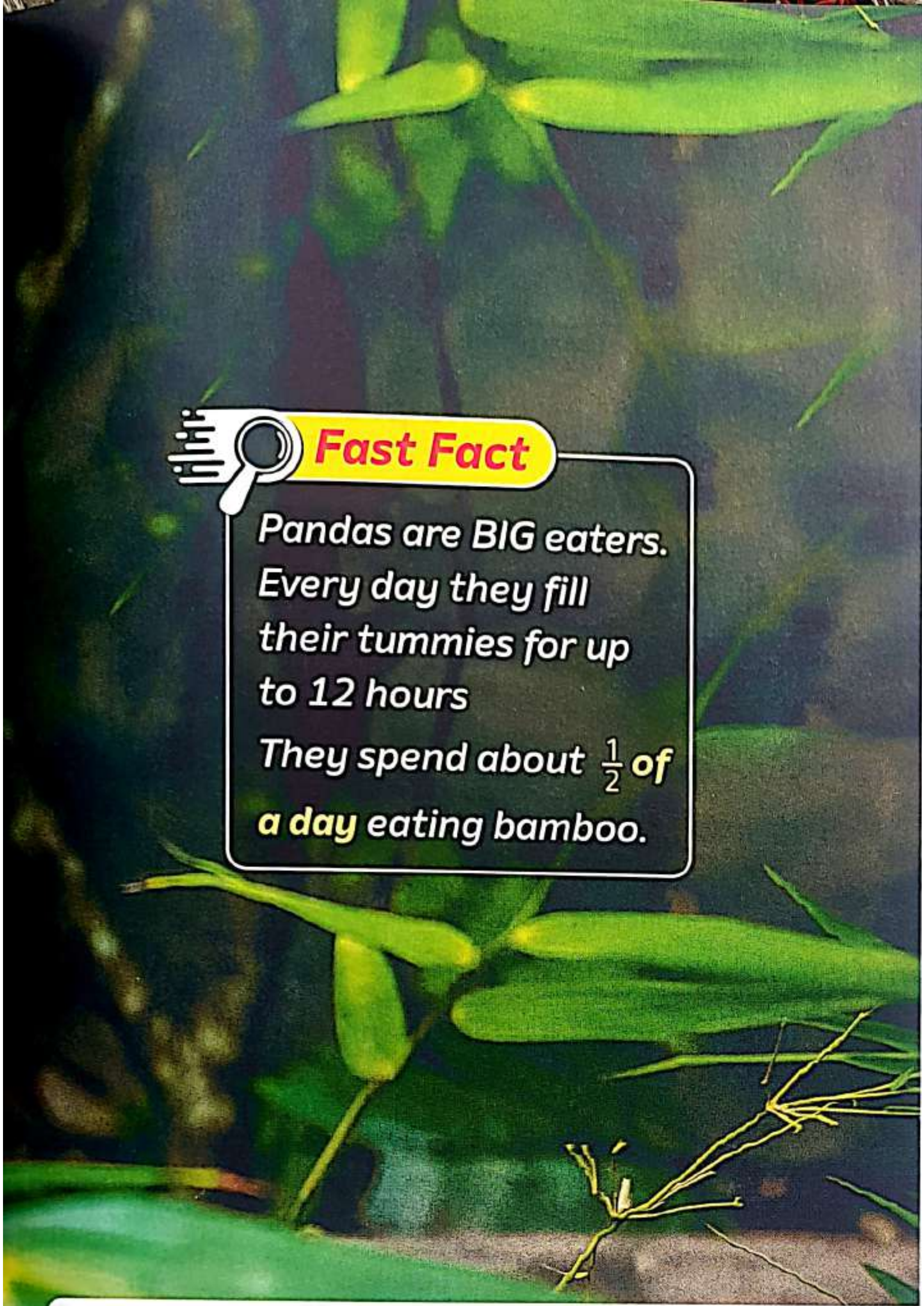
Fast Fact

Newborn babies spend $\frac{2}{3}$ of a day sleeping.
School-age children sleep for $\frac{5}{12}$ of a day.
Adults sleep for $\frac{1}{4}$ of a day.
Which age group spends the least time sleeping ?
Which spends the greatest time ?

Concept 1

Composing and Decomposing Fractions





Fast Fact

Pandas are BIG eaters. Every day they fill their tummies for up to 12 hours
They spend about $\frac{1}{2}$ of a day eating bamboo.

Concept Overview

In concept 1:

Composing and Decomposing Fractions, students work with unit fractions as a foundation to compose and decompose other fractions. Students represent larger fractions by adding up smaller ones. They move beyond one whole to begin an exploration of improper fractions and mixed numbers. Students add and subtract fractions, mixed numbers, and whole numbers by finding and using like denominators.

Lesson No.	Lesson Name	Vocabulary Terms	Learning Objectives
Lesson 1	9-1 Let's Build It	Compose - Denominator - Fraction - Numerator - Unit fraction	• Students will define unit factions. • Students will identify unit factions. • Students will compose other fractions with unit fractions.
	9-2 Break It Down	Decompose - proper fraction	• Students will decompose factions into unit factions.
	9-3 Break It Down Again	Compose - Decompose - Unit fraction - Whole	• Students will represent fractions with repeated addition and subtraction of unit and other fractions.
Lesson 2	9-4 All Mixed Up	Denominator - Equivalent - Improper fraction - Mixed number - Numerator - Proper faction	• Students will define mixed numbers. • Students will define improper fractions. • Students will explain how mixed numbers and improper fractions relate to unit fractions.
Lesson 3	9-5 Pieces from the Whole	Review vocabulary as needed.	• Students will add and subtract fractions and whole numbers.
	9-6 Adding Mixed Numbers	Mixed numbers	• Students will add mixed numbers with like denominators.
	9-7 Subtracting Mixed Numbers	Difference - Minuend - Mixed numbers - Subtrahend	• Students will subtract mixed numbers with like denominators.

Lesson
1

9-1 Let's Build It
9-2 Break It Down
9-3 Break It Down Again

Remember Unit fractions and proper fractions

Amal cut a pizza into 8 equal pieces.
She ate 1 piece. Bassem ate 3 pieces.
What fraction of the pizza did each one of them eat?

- Amal ate 1 piece of 8 equal pieces.
  The fraction of the pizza she ate = $\frac{1}{8}$ ← numerator ← denominator

  $\frac{1}{8}$ is a unit fraction, it is read as one eighth.

- Bassem ate 3 pieces of 8 equal pieces.
  The fraction of the pizza he ate = $\frac{3}{8}$

  $\frac{3}{8}$ is a proper fraction, it is read as three eighths.

Reviewing Vocabulary

Here are some math vocabulary words that you should know.

Fraction	a number that names a part of a whole or part of a group.
Denominator	the number below the bar in a fraction that tells how many equal parts there are.
Numerator	the number above the bar in a fraction that tells how many equal parts have been counted.
Unit fraction	a fraction has a numerator of 1.
Proper fraction	a fraction its numerator is less than its denominator.

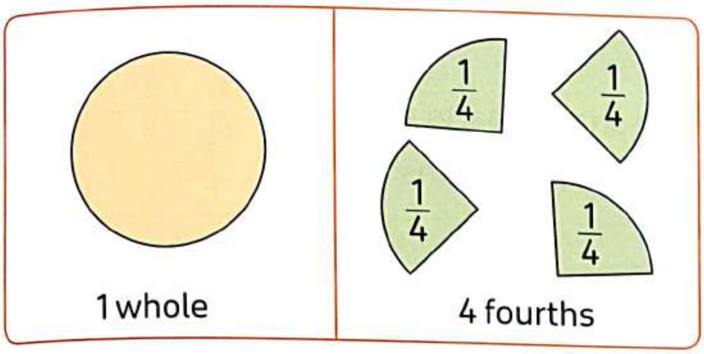
Note
The unit fractions are also proper fractions.

Notes for parents :

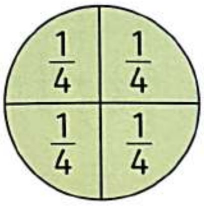
- Ask your child to give you an example for unit fraction and another example for proper fraction.

Learn Compose fractions

- You can put fractions together to compose (build) a new fraction or one whole.
- The yellow circle represents 1 whole.

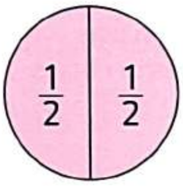


When you put 4 fourths together, you will get 1 whole.



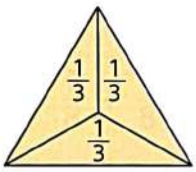
4 fourths $= \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 1$ whole

You can use unit fractions to compose one whole



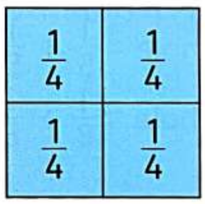
2 halves = 1 whole

$\frac{1}{2} + \frac{1}{2} = 1$



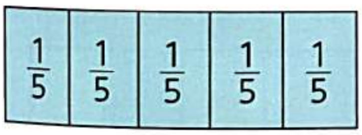
3 thirds = 1 whole

$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} = 1$



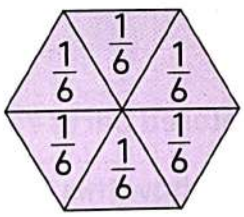
4 fourths = 1 whole

$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 1$



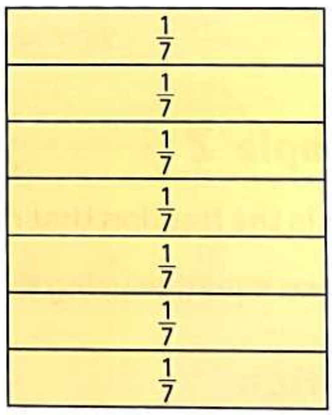
5 fifths = 1 whole

$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = 1$



6 sixths = 1 whole

$\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = 1$

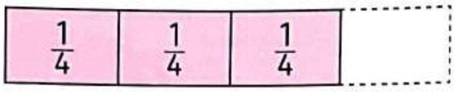


7 sevenths = 1 whole

$\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = 1$

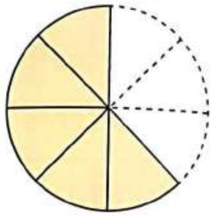
- Encourage your child to build models to show one whole using unit fractions.

Also, you can use unit fractions to compose proper fraction



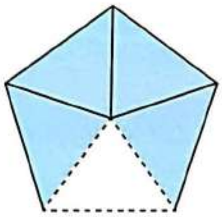
The shaded parts $= \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$

Read : Three fourths



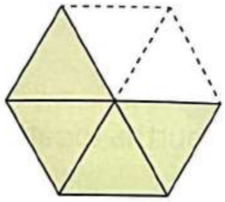
The shaded parts $= \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{5}{8}$

Read : Five eighths



The shaded parts $= \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{4}{5}$

Read : Four fifths



The shaded parts $= \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{4}{6}$

Read : Four sixths

Example 1

Create a model to represent each of the following :

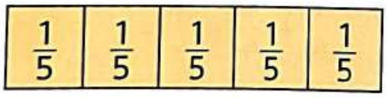
a. One whole $= \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$

b. One whole $= \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$

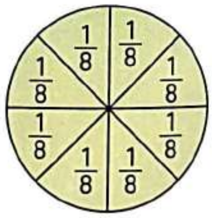
You can use rectangles or circles

Solution

a.



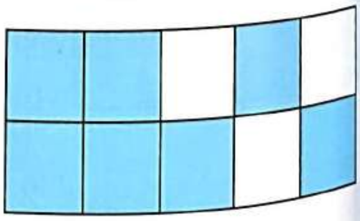
b.



Example 2

What is the fraction that represents the colored parts ?

Write an equation using the unit fractions to show this fraction.



Solution

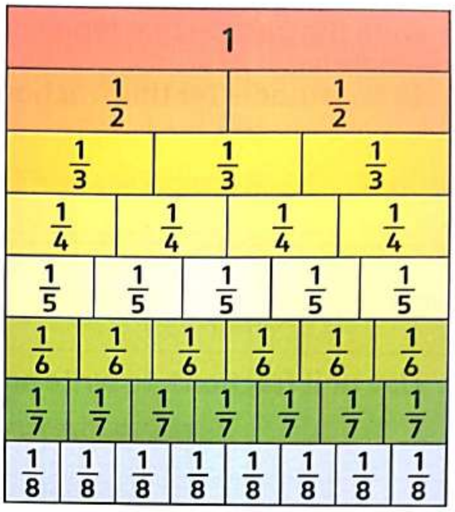
$$\frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} = \frac{7}{10}$$

Notes for parents :

- Help your child to use rectangles or circles to build a fraction using unit fractions.

Learn Decompose fractions

- Decomposing a fraction means breaking it into separate units or parts.
- You can decompose one whole into unit fractions as the opposite chart.



$$1=\frac{1}{2}+\frac{1}{2}$$
$$=\frac{1}{3}+\frac{1}{3}+\frac{1}{3}$$
$$=\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$$
$$=\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$$
$$=\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}$$
$$=\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}$$
$$=\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}=\dots$$

Notice

$$1=\frac{1}{1}=\frac{2}{2}=\frac{3}{3}=\frac{4}{4}=\frac{5}{5}=\frac{6}{6}=\frac{7}{7}=\frac{8}{8}=\dots$$

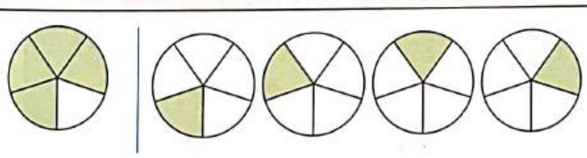
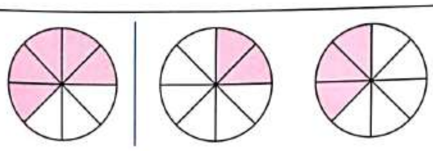
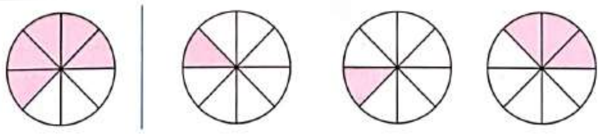
- **You can use unit fractions or proper fractions to decompose a fraction as in the following example.**

Example 3

Decompose each of the following fractions in two ways. Draw a model.

a. $\frac{4}{5}$ b. $\frac{5}{8}$

Solution

	First way	Another way
a.	 $\frac{4}{5}=\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$	$\frac{4}{5}=\frac{2}{5}+\frac{2}{5}$
b.	 $\frac{5}{8}=\frac{2}{8}+\frac{3}{8}$	 $\frac{5}{8}=\frac{1}{8}+\frac{1}{8}+\frac{3}{8}$

• Help your child to decompose fractions in several ways.

Check your understanding

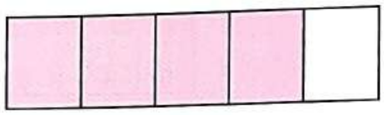
Work area

1. Write the fraction that represents $\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$

Draw a model for this fraction.

____

2. **Use unit fractions, to write an equation represents the fraction for the colored parts.**



____

3. **Write an equation to decompose $\frac{3}{4}$ into unit fractions.**

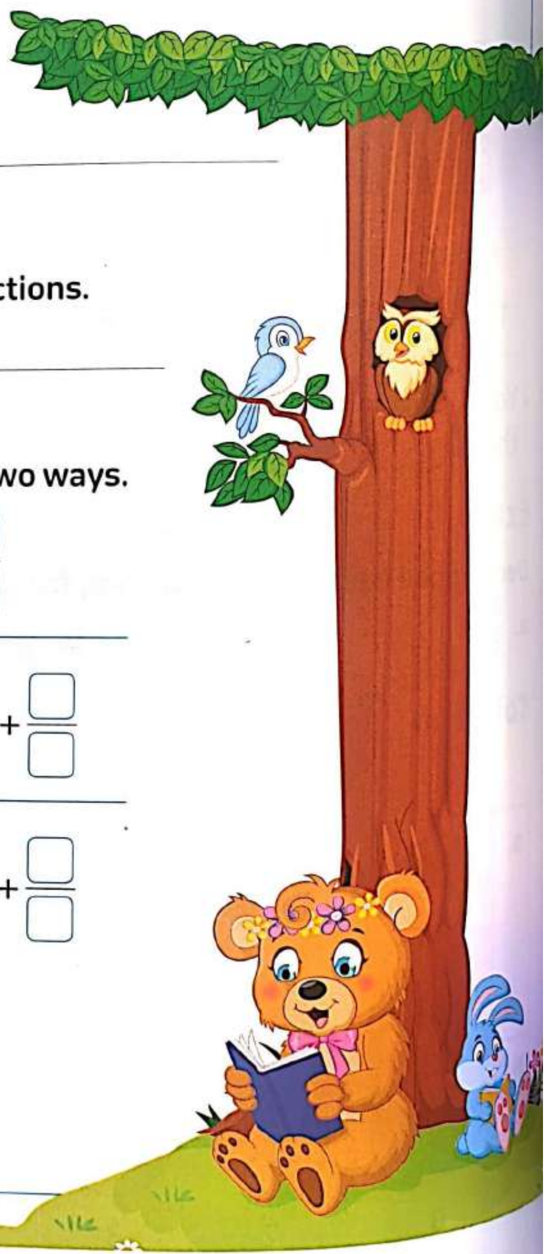
____

4. **Decompose each of the following fractions, in two ways.**

a. $\frac{3}{6} = \frac{\square}{\square} + \frac{\square}{\square} + \frac{\square}{\square}$ $\qquad$ $\frac{3}{6} = \frac{\square}{\square} + \frac{\square}{\square}$

b. $\frac{6}{7} = \frac{\square}{\square} + \frac{\square}{\square}$ $\qquad$ $\frac{6}{7} = \frac{\square}{\square} + \frac{\square}{\square} + \frac{\square}{\square}$

c. $\frac{4}{5} = \frac{\square}{\square} + \frac{\square}{\square}$ $\qquad$ $\frac{4}{5} = \frac{\square}{\square} + \frac{\square}{\square} + \frac{\square}{\square}$



Notes for parents :

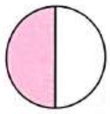
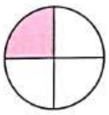
- Encourage your child to use models or drawings to compose and decompose fractions in this page.

Exercise 8

9-1 Let's Build It
9-2 Break It Down
9-3 Break It Down Again

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | 📖 From the school book

1. 📖 Fill in the table with information about each fraction.

	Total number of equal parts	Total number of equal parts shaded	Word form	Fraction form
a. 	______	______	______	______
b.	______	______	______	______
c. 	______	______	______	______
d.	______	______	______	______
e.	______	______	______	______
f.	______	______	______	______

2. Record a definition of each term.

a. Fraction : ______________________________

b. 📖 Numerator : ______________________________

c. 📖 Denominator : ______________________________

d. 📖 Unit fraction : ______________________________

e. Proper fraction : ______________________________

3. **Create a model to represent each of the following. Use circles or rectangles.**

a. $\frac{1}{2} + \frac{1}{2} = 1$ whole

b. $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} = 1$ whole

c. $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 1$ whole

4. **How many unit fractions compose each of the following fractions.**

a. $\frac{3}{5}$ ________

b. $\frac{6}{7}$ ________

c. $\frac{4}{9}$ ________

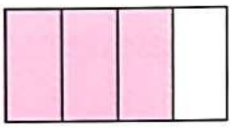
d. Five-eighths ________

e. Three quarters ________

f. Seven tenths ________

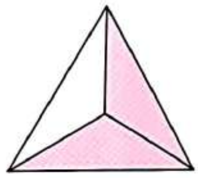
5. **What is the fraction that represents the colored parts ?**

Write an equation using unit fractions to show how to compose this fraction.

a. 

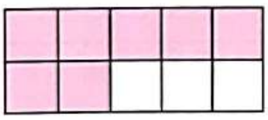
____

____

b. 

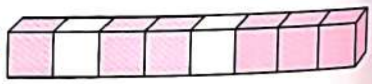
____

____

c. 

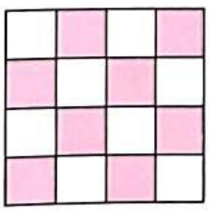
____

____

d. 

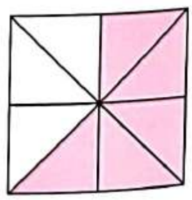
____

____

e. 

____

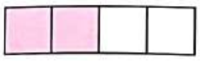
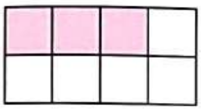
____

f. 

____

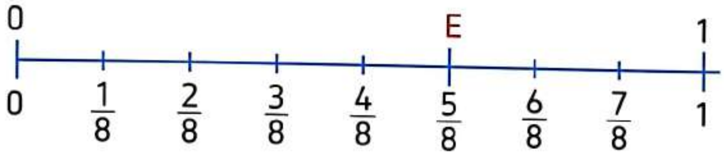
____

6. Complete the table.

	Model	Fraction	Unit fraction	Equation to form the fraction
a.		______	______	______
b.		$\frac{5}{6}$	______	______
c.		______	$\frac{1}{8}$	______
d.		______	______	$\frac{1}{3}+\frac{1}{3}$

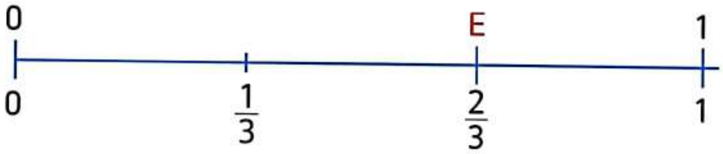
7. Look at point E on the number line. How many unit fractions do you need to represent point E in each of the following ?

a.



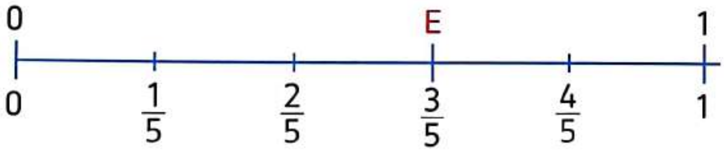
____

b.



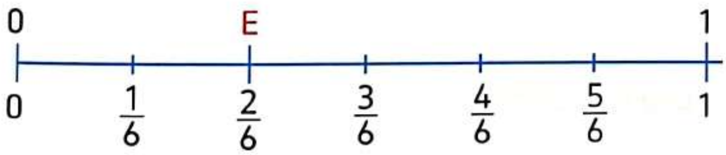
____

c.



____

d.



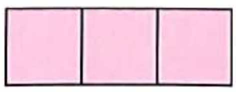
____

8. Write an equation to decompose each of the following into unit fractions.

a.

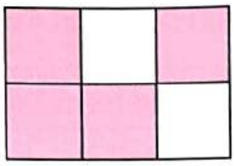
____

b.



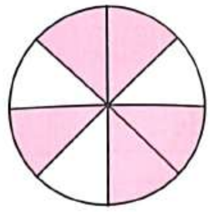
____

c.



______

d.



______

9. Write an equation decomposing each of the following fractions into unit fractions.

a. $\frac{3}{5}=$ ______ b. $\frac{5}{7}=$ ______ c. $\frac{4}{5}=$ ______

d. $\frac{3}{8}=$ ______ e. $\frac{2}{6}=$ ______ f. $\frac{3}{10}=$ ______

10. Decompose each of the following proper fractions in two ways.

	First way	Another way
a. $\frac{3}{5}$	$\frac{3}{5}=\frac{\square}{\square}+\frac{\square}{\square}$	$\frac{3}{5}=\frac{\square}{\square}+\frac{\square}{\square}+\frac{\square}{\square}$
b. $\frac{7}{8}$	$\frac{7}{8}=\frac{\square}{\square}+\frac{\square}{\square}$	$\frac{7}{8}=\frac{\square}{\square}+\frac{\square}{\square}+\frac{\square}{\square}$
c. $\frac{5}{6}$	$\frac{5}{6}=$ ______	$\frac{5}{6}=$ ______
d. $\frac{4}{9}$	$\frac{4}{9}=$ ______	$\frac{4}{9}=$ ______
e. $\frac{4}{7}$	$\frac{4}{7}=$ ______	$\frac{4}{7}=$ ______
f. $\frac{5}{8}$	$\frac{5}{8}=$ ______	$\frac{5}{8}=$ ______
g. $\frac{6}{10}$	$\frac{6}{10}=$ ______	$\frac{6}{10}=$ ______

11. Draw a model that represents one way of decomposing the following.

a. $\frac{3}{4}$ b. $\frac{4}{5}$

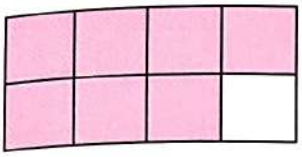
12. Draw models and write as many equations as possible to decompose the given fractions.

a. $\frac{9}{12}$ ______________________________

____

b. $\frac{12}{15}$ ______________________________

____

c. 

____

____

d.

____

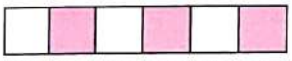
____

13. Match.

a. $\frac{1}{3}+\frac{1}{3}+\frac{1}{3}$

b. Two fifths

c. $\frac{2}{7}+\frac{3}{7}$

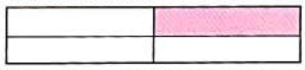
d. 

e. One fourth

1. $\frac{2}{5}$

2. One

3. $\frac{3}{6}$

4. 

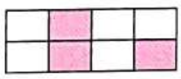
5. $\frac{5}{7}$

14. Put (✓) or (✗).

a. $\frac{4}{5}$ is a unit fraction. [ ]

b. $\frac{3}{9}+\frac{1}{9}+\frac{1}{9}=\frac{5}{9}$ [ ]

c. $\frac{9}{7}$ is a proper fraction. [ ]

d. The model  represents $\frac{3}{8}$ [ ]

e. represents six tenths. [ ]

f. $1=\frac{8}{8}$ [ ]

g. $\frac{1}{6}$ is a proper fraction. [ ]

15. Complete.

a. $\frac{1}{3}+\frac{1}{3}=$ ____________

b. $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}=$ ____________

c. ____________ $=\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}$

d. ____________ $=\frac{1}{10}+\frac{1}{10}+\frac{1}{10}+\frac{1}{10}$

e. $\frac{__}{5} = 1$

f. $\frac{3}{__} = 1$

g. $\frac{3}{3} =$ ________

h. $\frac{1}{7} +$ ________ $+ \frac{4}{7} = 1$

i. ________ $+ \frac{1}{5} = \frac{4}{5}$

j. Two thirds = $\frac{__}{__} + \frac{__}{__}$

k. Three sevenths = $\frac{__}{__} + \frac{__}{__} + \frac{__}{__}$

l. $1 = \frac{__}{__} + \frac{__}{__}$

m. $\frac{__}{__} + \frac{__}{__} + \frac{__}{__} + \frac{__}{__} = 1$

16. Two families went to the local restaurant. Each family ordered the feteer meshaltet. Eman's family wanted their feteer cut into 6 equal pieces. Ayman's family wanted their feteer cut into 8 equal pieces. If both feteer are the same size, which family will have larger pieces to eat ? How do you know ?

____

____

17. Mazen needed $\frac{3}{4}$ cup of sugar for his recipe. He had a measuring cup that held $\frac{1}{4}$ cup of sugar.How many times will he need to fill the measuring cup for his recipe ?

____

____

18. Omar ate $\frac{1}{5}$ of a bag of popcorn. He and his brother Amir shared the rest of the bag. Write equations to show two ways they could share the remaining popcorn.

____

____

19. Ahmed said that the sum of $\frac{4}{10} + \frac{7}{10} + \frac{1}{10}$ is the same of the sum of $\frac{2}{10} + \frac{5}{10} + \frac{5}{10}$ Is Ahmed true ? [Give reason]

____

____

Challenge

20. Is $\frac{1}{1}$ a unit fraction or a proper fraction ? [Explain your answer]

____

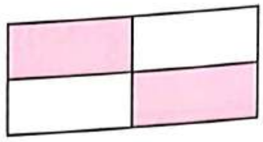
Choose the correct answer.

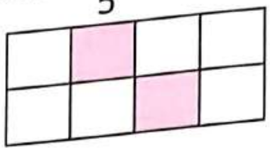
1. Which of the following is a unit fraction ?

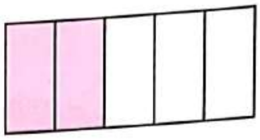
A. $\frac{2}{3}$ B. $\frac{1}{4}$

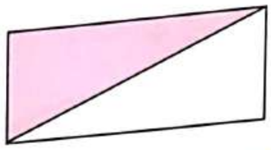
C. $\frac{3}{5}$ D. $\frac{3}{4}$

2. The model which represents $\frac{2}{5}$ is ______

A. 

B. 

C. 

D. 

3. Two fifths = ______

A. $\frac{1}{5}$ B. $\frac{2}{5}$

C. $\frac{3}{5}$ D. $\frac{4}{5}$

4. The equation of decomposing $\frac{3}{7}$ into the unit fractions is ______

A. $\frac{1}{7}+\frac{2}{7}$ B. $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}$

C. $\frac{3}{4}+\frac{3}{3}$ D. $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}$

5. Which equation of the following represents $\frac{5}{7}$?

A. $\frac{2}{7}+\frac{3}{7}$ B. $\frac{5}{4}+\frac{5}{3}$

C. $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}$ D. $\frac{1}{7}+\frac{3}{7}$

6. $\frac{3}{9}+\frac{6}{9}=$ ______

A. $\frac{3}{9}$ B. $\frac{9}{18}$

C. 1 D. $\frac{6}{9}$

7. Which of the following expressions is the same as $\frac{5}{6}$?

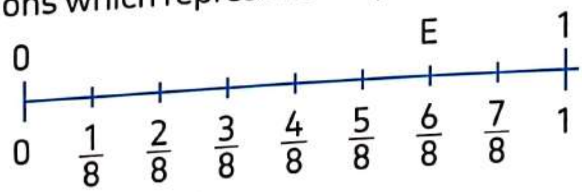
A. $\frac{1}{6}+\frac{2}{6}+\frac{3}{6}+\frac{4}{6}+\frac{5}{6}$ B. $\frac{5}{6}+\frac{5}{6}+\frac{5}{6}+\frac{5}{6}+\frac{5}{6}$

C. $\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}$ D. $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$

8. 1 = ______

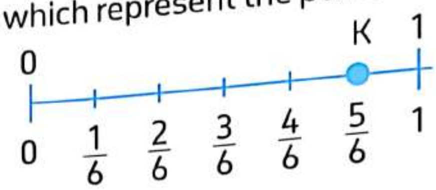
A. $\frac{1}{4}$ B. $\frac{2}{4}$ C. $\frac{3}{4}$ D. $\frac{4}{4}$

9. The number of unit fractions which represent the point E is ______



A. 2 B. 4 C. 6 D. 8

10. The number of unit fractions which represent the point K is ______



A. 6 B. 5 C. 4 D. 3

11. $\frac{3}{7}$ + ______ + $\frac{2}{7} = \frac{6}{7}$

A. $\frac{1}{7}$ B. $\frac{2}{7}$

C. $\frac{3}{7}$ D. $\frac{4}{7}$

12. $\frac{3}{10} = \frac{2}{10}$ + ______

A. $\frac{1}{10}$ B. $\frac{2}{10}$

C. $\frac{3}{10}$ D. $\frac{4}{10}$

13. Maha has $\frac{7}{8}$ of a pizza. If her brother Ahmed ate $\frac{5}{8}$ of it, then the share of Maha is ______

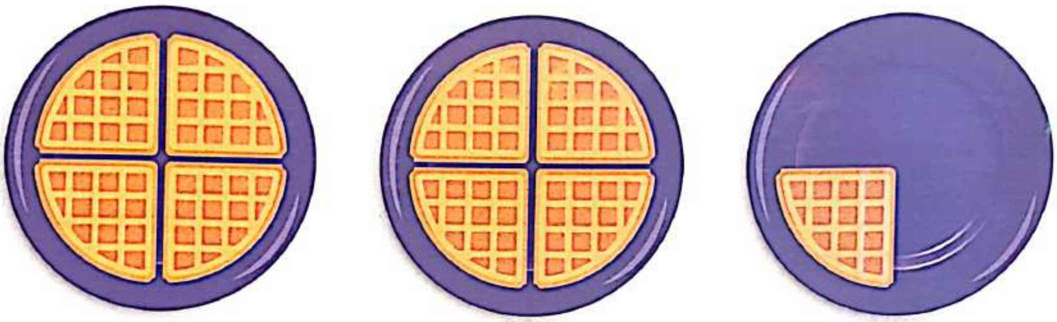
A. $\frac{1}{8}$ B. $\frac{2}{8}$ C. $\frac{3}{8}$ D. $\frac{5}{8}$

Lesson 2

9-4 All Mixed Up

Learn Improper fractions and mixed numbers

There are two whole waffles and one fourth of a waffle. There are nine fourths waffles.

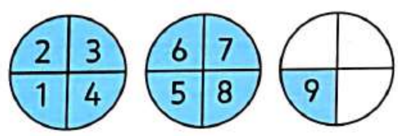


You can write the amount of waffles as an improper fraction or as a mixed number.

An **improper fraction** has a numerator that is greater than or equal to its denominator.

$\frac{9}{4}$ ← Improper fraction

To write an improper fraction, count the parts.



$\frac{9}{4}$

$\frac{9}{4}$ means : you have 9 parts , each part is a fourth $\left[\frac{1}{4}\right]$ of a whole.

A **mixed number** is made up of a whole number and a proper fraction.

Whole number → $2\frac{1}{4}$ ← Fraction

To write a mixed number, count the wholes and parts.

$\frac{4}{4} + \frac{4}{4} + \frac{1}{4} = 2\frac{1}{4}$

$2\frac{1}{4}$ read as "Two and one fourth".

Notes for parents :

- In this lesson, your child will write and make connection between mixed numbers and improper fractions.

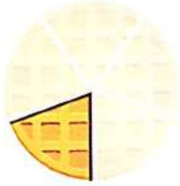
Remember **The definitions of the three types of fractions**

• Proper fraction.

A proper fraction is just a fraction where its numerator is **less than** its denominator.

Numerator < Denominator

• **Examples for proper fractions :**

$\frac{1}{5}$ 

$\frac{2}{6}$

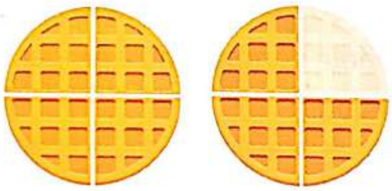
$\frac{3}{8}$

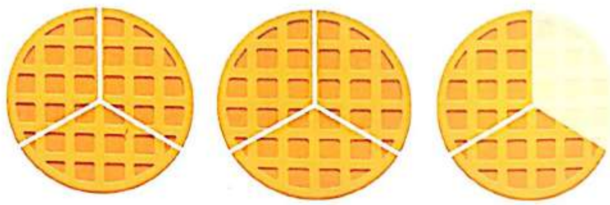
• Improper fraction.

An improper fraction is just a fraction where its numerator is **greater than** or **equal to** its denominator.

Numerator ⩾ Denominator

• **Examples for improper fractions :**

 $\frac{7}{4}$

 $\frac{8}{3}$

• Mixed number.

A mixed number is a number made up of a whole number and a proper fraction.

• **Example for mixed numbers :**

$1\frac{3}{4}$

[One and three quarters]

$1\frac{3}{4}$

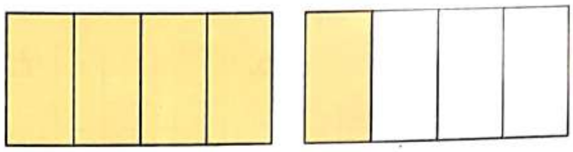
Whole number **Proper fraction**

Notes for parents :

• Ask your child what is the difference among a proper fraction, an improper fraction, and a mixed number?

Example 1

Observe the model, then answer the following questions :



1. What is the unit fraction used to compose this improper fraction ?
2. How many colored unit fractions in the model ?
3. What is the improper fraction represented by this model ?

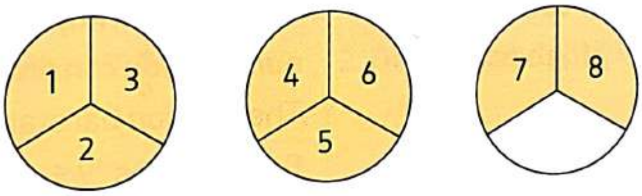
Solution

1. $\frac{1}{4}$
2. 5
3. $\frac{5}{4}$

Example 2

Draw a model that represents the improper fraction $\frac{8}{3}$

Solution



Remark 1

Any whole number not equal to 0 can be written in the form of an improper fraction.

Examples :

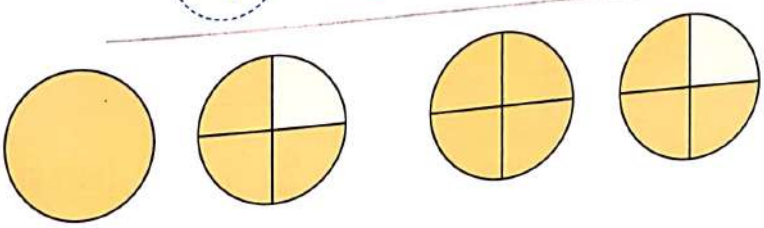
- $1 = \frac{1}{1} = \frac{2}{2} = \frac{3}{3} = \frac{4}{4} = \dots$ etc.
- $5 = \frac{5}{1} = \frac{10}{2} = \frac{15}{3} = \frac{20}{4} = \dots$ etc.
- $2 = \frac{2}{1} = \frac{4}{2} = \frac{6}{3} = \frac{8}{4} = \dots$ etc.
- $10 = \frac{10}{1} = \frac{20}{2} = \frac{30}{3} = \frac{40}{4} = \dots$ etc.

Remark 2

Any mixed number can be written as an improper fraction and vice versa.

Example :

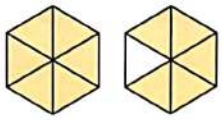
$1\frac{3}{4} = \frac{7}{4}$



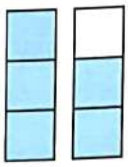
Example 3

Write an improper fraction for the shaded parts. Then write each as a mixed number or as a whole number.

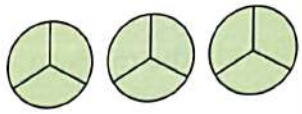
a.



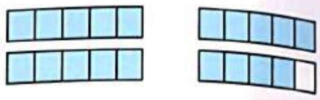
b.



c.



d.



Solution

You can count unit fractions.

a. $\frac{11}{6} = 1\frac{5}{6}$ **b.** $\frac{5}{3} = 1\frac{2}{3}$ **c.** $\frac{9}{3} = 3$ **d.** $\frac{19}{5} = 3\frac{4}{5}$

Here's how to change from one form to another.

To change a mixed number to an improper fraction, you can multiply then add as shown below.

$2\frac{1}{4} = \frac{9}{4}$ ← $(4 \times 2) + 1$
← denominator stays the same.

So, $2\frac{1}{4} = \frac{9}{4}$

To change an improper fraction to a mixed number, you can divide.

The fraction bar stands for "divided by"

So, $\frac{9}{4}$ means "9 ÷ 4"

2 ← number of wholes
4 ⟌ 9
− 8
1 ← number of fourths

9 ÷ 4 = 2 R 1

So, $\frac{9}{4}$ is equal to $2\frac{1}{4}$

Example 4

Write each of the following mixed numbers as an improper fraction.

a. $2\frac{3}{4}$ **b.** $3\frac{5}{8}$ **c.** $2\frac{3}{7}$ **d.** $5\frac{7}{10}$

Solution

a. $2\frac{3}{4} = \frac{11}{4}$ (Think: $\frac{(4 \times 2) + 3}{4}$)

b. $3\frac{5}{8} = \frac{29}{8}$ (Think: $\frac{(8 \times 3) + 5}{8}$)

c. $2\frac{3}{7} = \frac{17}{7}$ (Think: $\frac{(7 \times 2) + 3}{7}$)

d. $5\frac{7}{10} = \frac{57}{10}$ (Think: $\frac{(10 \times 5) + 7}{10}$)

Notes for parents :

- Ask your child to write the × and + symbols when changing to improper fraction. Marking the arrows to show the direction to follow may help your child do the operations in the correct orders.

Example 5

Write each of the following improper fractions as a mixed number.

a. $\frac{3}{2}$ b. $\frac{26}{3}$ c. $\frac{39}{4}$ d. $\frac{13}{7}$

Solution

a. $\frac{3}{2} = 1\frac{1}{2}$ [Think : $3 \div 2 = 1$ R 1]

b. $\frac{26}{3} = 8\frac{2}{3}$ [Think : $26 \div 3 = 8$ R 2]

c. $\frac{39}{4} = 9\frac{3}{4}$ [Think : $39 \div 4 = 9$ R 3]

d. $\frac{13}{7} = 1\frac{6}{7}$ [Think : $13 \div 7 = 1$ R 6]

Check your understanding

1. Draw a model to represent $2\frac{2}{3}$

2. Draw a model to represent $\frac{15}{6}$

3. Write each mixed number as an improper fraction.

a. $3\frac{3}{4}$ ______

b. $6\frac{3}{5}$ ______

c. $2\frac{4}{5}$ ______

d. $7\frac{2}{9}$ ______

4. Write each improper fraction as a mixed number.

a. $\frac{18}{5}$ ______

b. $\frac{10}{3}$ ______

c. $\frac{18}{4}$ ______

d. $\frac{35}{6}$ ______

* Let your child check his/her answers by changing improper fractions back to mixed numbers and mixed numbers back to improper fractions.

Exercise 9

9-4 All Mixed Up

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING — From the school book

1. State which is a proper fraction, an improper fraction or a mixed number in each of the following.

a. $\frac{5}{6}$ ....   b. $\frac{6}{5}$ ....   c. $\frac{12}{7}$ ....

d. $\frac{6}{7}$ ....   e. $5\frac{3}{8}$ ....   f. $3\frac{5}{12}$ ....

2. Choose the best term from the box.

A mixed number
A proper fraction
An improper fraction

a. .... is a fraction greater than, or equal to 1.

b. .... is made up of a whole number and a fraction.

c. .... is a fraction its numerator is less than its denominator.

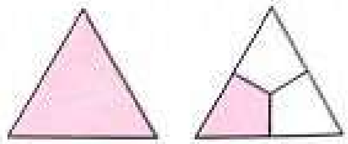
3. Choose the correct mixed number for each picture from the box.

$2\frac{1}{5}$, $2\frac{1}{4}$, $1\frac{1}{3}$, $3\frac{4}{6}$, $2\frac{2}{6}$, $1\frac{2}{5}$

a.

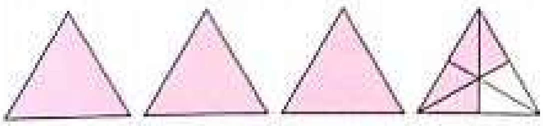
....

b.



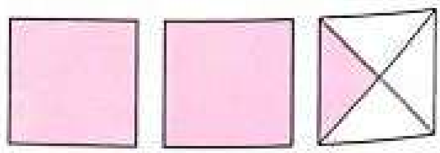
....

c.



....

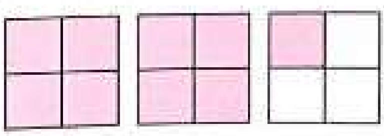
d.



....

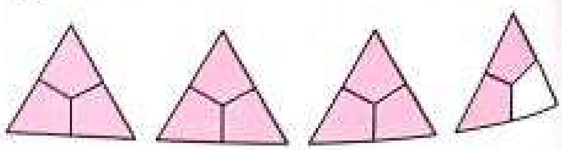
4. Write an improper fraction for the shaded parts. Then write each as a mixed number or as a whole number.

a.



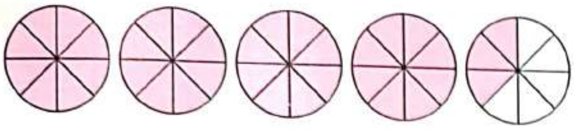
.... = ...

b.



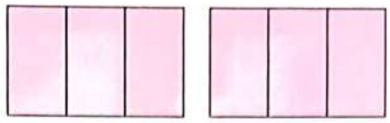
.... = ...

c.



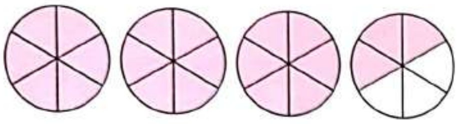
_______ = _______

d.



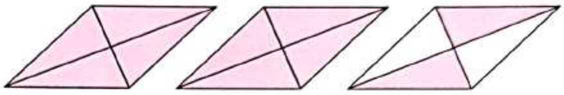
_______ = _______

e.



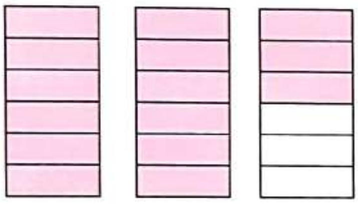
_______ = _______

f.



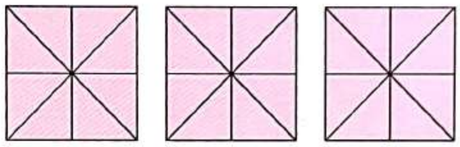
_______ = _______

g.



_______ = _______

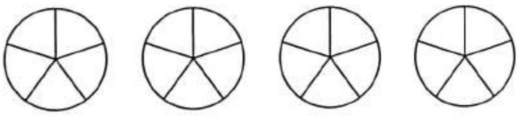
h.



_______ = _______

5. **Shade the model to represent the following mixed numbers, then write the equivalent improper fraction.**

a. $3\frac{1}{5}$

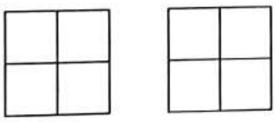


____

b. $2\frac{1}{3}$

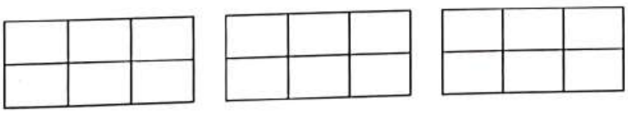
____

c. $1\frac{1}{4}$



____

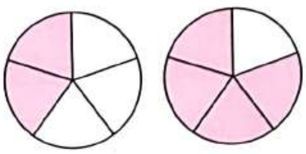
d. $2\frac{1}{6}$



____

6. **Write the opposite fraction in the form of improper fraction and mixed number.**

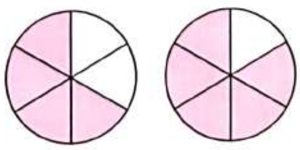
a.



Improper fraction _______

Mixed number _______

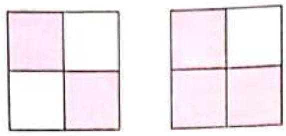
b.



Improper fraction _______

Mixed number _______

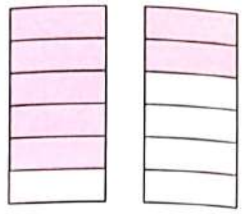
c.



Improper fraction ____________

Mixed number ____________

d.



Improper fraction ____________

Mixed number ____________

7. Draw a model for each of the following mixed numbers. Then write each mixed number as an improper fraction.

a. $4\frac{1}{4}$

b. $3\frac{1}{8}$

c. $5\frac{3}{5}$

d. $3\frac{2}{3}$

8. Draw a model for each of the following improper fractions. Then write each improper fraction as a mixed number.

a. $\frac{3}{2}$

b. $\frac{7}{3}$

c. $\frac{16}{6}$

d. $\frac{32}{5}$

9. Write each mixed number as an improper fraction.

a. $3\frac{1}{2}=$ ____________

b. $2\frac{1}{6}=$ ____________

c. $6\frac{7}{8}=$ ____________

d. $5\frac{1}{4}=$ ____________

e. $4\frac{1}{5}=$ ____________

f. $6\frac{2}{3}=$ ____________

g. $12\frac{2}{3}=$ ____________

h. $9\frac{1}{4}=$ ____________

i. $8\frac{2}{5}=$ ____________

j. $25\frac{1}{4}=$ ____________

k. $22\frac{1}{2}=$ ____________

l. $6\frac{4}{5}=$ ____________

10. **Write each improper fraction as a mixed number or as a whole number.**

a. $\frac{9}{2}$ = ______ b. $\frac{19}{5}$ = ______ c. $\frac{25}{3}$ = ______

d. $\frac{42}{6}$ = ______ e. $\frac{43}{8}$ = ______ f. $\frac{49}{6}$ = ______

g. $\frac{36}{4}$ = ______ h. $\frac{68}{9}$ = ______ i. $\frac{23}{4}$ = ______

j. $\frac{23}{5}$ = ______ k. $\frac{34}{3}$ = ______ l. $\frac{49}{7}$ = ______

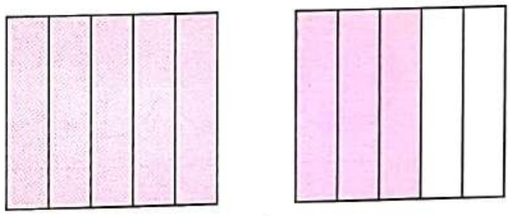
11. **Complete.**

a. $\frac{3}{3}$ = ______ , $\frac{6}{3}$ = ______ , $\frac{9}{3}$ = ______ , $\frac{12}{3}$ = ______

b. $\frac{__}{5} = 2$ c. $\frac{__}{7} = 3$ d. $\frac{__}{5} = 5$

e. $\frac{15}{__} = 5$ f. $\frac{8}{__} = 2$ g. $\frac{9}{__} = 1$

12. **Look at the model and answer the questions.**



a. What unit fraction is used to build this improper fraction ? ______

b. How many unit fractions are colored in ? ______

c. What is the improper fraction represented by this model ? ______

13. **Writing about Math.**

Maher wrote $\frac{13}{5}$ as a mixed number.

Explain what Maher did wrong.
Then solve the problem correctly.

______

Maher

$\frac{13}{5}$ means "13 ÷ 5"

$5\overline{)13}$ with quotient 2, -10, remainder 3. So, $\frac{13}{5} = 3\frac{2}{5}$

Challenge

14. Mona baked a square cake for her mom's birthday. She wanted to put a border of frosting on the top of the cake. If one side of the cake measures $\frac{3}{8}$ meter, what is the perimeter of the top of the cake ? Write the answer as both a mixed number and an improper fraction.

______

______

Multiple Choice Questions

Choose the correct answer:

1. A fraction in which its numerator is greater than or equal to its denominator is called ______

A. a proper fraction.
B. a mixed number.
C. a unit fraction.
D. an improper fraction.

---

2. Which of the following is an improper fraction ?

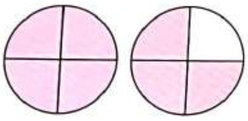
A. $2\frac{1}{5}$
B. $\frac{5}{7}$
C. $\frac{1}{4}$
D. $\frac{3}{2}$

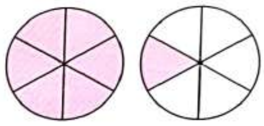
3. Which of the following is a mixed number ?

A. $\frac{3}{2}$
B. $\frac{51}{5}$
C. $\frac{2}{3}$
D. $5\frac{1}{2}$

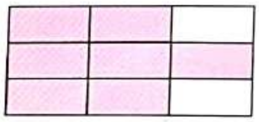
---

4. The correct model which represents the improper fraction $\frac{7}{6}$ is ______

A. 

B. 

C.

D. 

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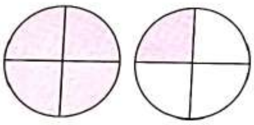
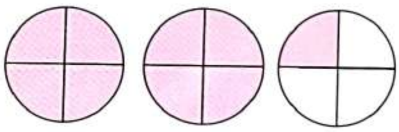
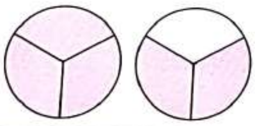
5. The correct model which represents the improper fraction $\frac{5}{4}$ is ______

A. 

B. 

C. 

D.

---

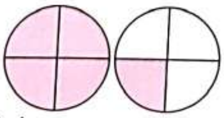
6. $2\frac{1}{7} =$ ______ (as an improper fraction)

A. $\frac{2}{7}$
B. $\frac{15}{7}$
C. $\frac{13}{7}$
D. $\frac{21}{7}$

7. $\frac{71}{10} =$ ______ (as a mixed number)

A. $70\frac{1}{10}$
B. $7\frac{1}{2}$
C. $7\frac{1}{10}$
D. $10\frac{1}{7}$

---

8. Ashraf eats  pizza, then the fraction which represented by the shape equals ______ (choose two answers).

A. $\frac{5}{4}$
B. $1\frac{1}{3}$
C. $4\frac{1}{4}$
D. $1\frac{1}{4}$

9. At a party, Sally eats $3\frac{1}{3}$ cup cakes. Ali eats $\frac{10}{3}$ cup cakes. Who eats the most ?

A. They both eat the same amount.
B. Ali eats the most.
C. Sally eats the most.

Lesson 3

9-5 Pieces From the Whole
9-6 Adding Mixed Numbers
9-7 Subtracting Mixed Numbers

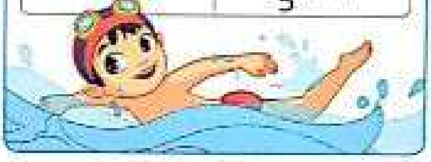
Learn Parts of a whole

Wael recorded the distance he covered in swimming in five days.

1. How many km did Wael swim altogether during the 5 days ?
2. How much further did Wael swim on Thursday than on Wednesday ?

Wael's Swimming Record

Day	Distance
Monday	1 km
Tuesday	1 km
Wednesday	$\frac{3}{5}$ km
Thursday	1 km
Friday	$\frac{4}{5}$ km



Answer :

1. You can add to find the total distance he covered.

Add. $1 + 1 + 1 + \frac{3}{5} + \frac{4}{5}$

One Way [Use models]

$$1 + 1 + 1 + \frac{3}{5} + \frac{4}{5} = \frac{22}{5} = 4\frac{2}{5}$$

[Think : 22 ÷ 5 = 4 R2]

Another Way

$$[1 + 1 + 1] + [\frac{3}{5} + \frac{4}{5}]$$
$$= 3 + \frac{7}{5} \text{ [Think : } 7 \div 5 = 1 \text{ R2]}$$
$$= 3 + 1\frac{2}{5} = 4\frac{2}{5}$$

MATH IDEA

To add fractions with common denominators, add the numerators and then write the sum over the common denominator

$$\frac{3}{5} + \frac{4}{5} = \frac{7}{5}$$

Third Way

$$1 + 1 + 1 + \frac{3}{5} + \frac{4}{5} \quad \text{[Think : } 1 = \frac{5}{5}\text{]}$$
$$\frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{3}{5} + \frac{4}{5} = \frac{22}{5} = 4\frac{2}{5}$$

So, Wael swim $4\frac{2}{5}$ km during the 5 days.

Notes for parents :

- Help your child to use models to add fractions.

2. You can subtract to find the difference.

Subtract. $1 - \frac{3}{5}$

One Way Use a model

$1 - \frac{3}{5} = \frac{2}{5}$

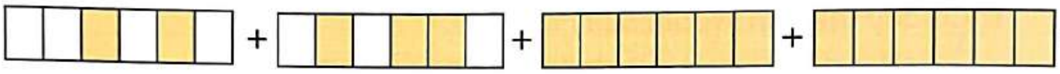
Another Way

$1 - \frac{3}{5} = \frac{5}{5} - \frac{3}{5} = \frac{2}{5}$

So, Wael swim $\frac{2}{5}$ km on Thursday further than on Wednesday.

Example 1

Rewrite the problem with whole numbers and proper fractions, then solve it :



= ______

Solution

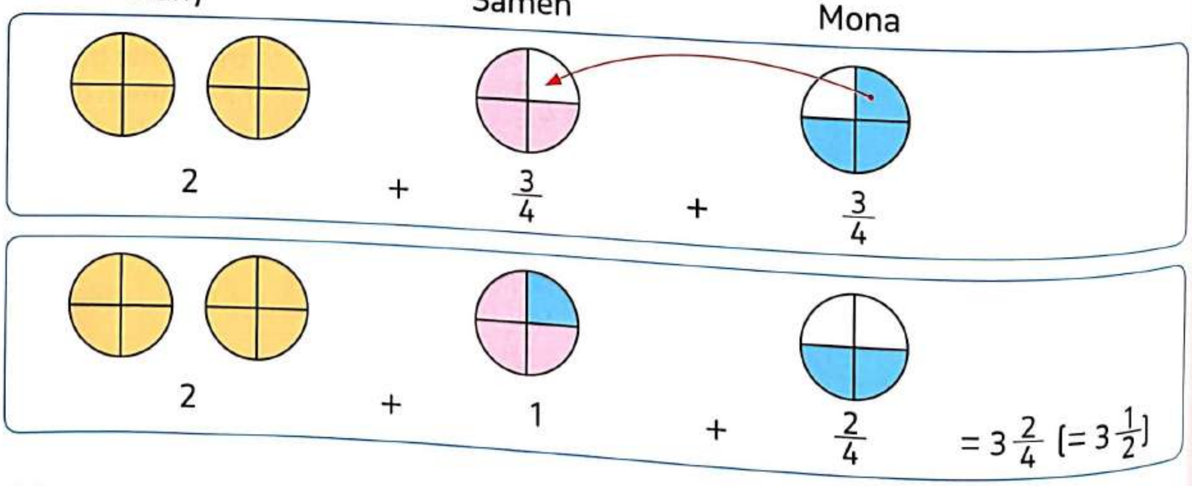
$\frac{2}{6} + \frac{3}{6} + 1 + 1 = 2\frac{5}{6}$

$\frac{5}{6} + 2$

Example 2

Hany has 2 pizzas, Sameh has $\frac{3}{4}$ pizza, and Mona has $\frac{3}{4}$ pizza. Use models to find the total they have.

Solution



$2 + \frac{3}{4} + \frac{3}{4}$

$2 + 1 + \frac{2}{4} = 3\frac{2}{4}\ (= 3\frac{1}{2})$

Notes for parents :

- Help your child to use models to subtract fractions.

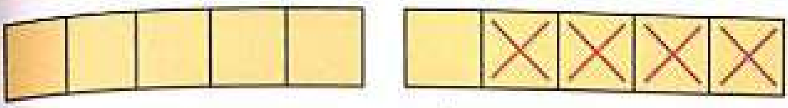
Example 3

Hany walks 2 km every day. Sally walks $\frac{4}{5}$ km every day.

Haw much further does Hany walk than Sally ?

You may draw models to help.

Solution



$$2 - \frac{4}{5} = 1\frac{1}{5}$$

So, Hany walks $1\frac{1}{5}$ further than Sally.

Example 4

Solve each of the following problems.

a. $6 + \frac{1}{5} + \frac{2}{5} + \frac{1}{5}$

b. $\frac{4}{9} + \frac{5}{9} + 2$

c. $1 + 2 + \frac{2}{3} + \frac{2}{3}$

d. $1 - \frac{3}{4}$

e. $2 - \frac{5}{8}$

f. $1 - \frac{2}{7} - \frac{1}{7}$

Solution

a. $6 + \frac{1}{5} + \frac{2}{5} + \frac{1}{5}$

$= 6 + \frac{4}{5}$

$= 6\frac{4}{5}$

b. $\frac{4}{9} + \frac{5}{9} + 2$

$= \frac{9}{9} + 2$ [Think : $\frac{9}{9} = 1$]

$= 1 + 2 = 3$

c. $1 + 2 + \frac{2}{3} + \frac{2}{3}$

$= 3 + \frac{4}{3}$ [Think : $\frac{4}{3} = 1\frac{1}{3}$]

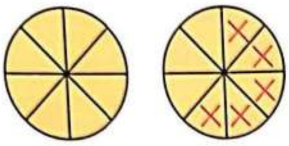
$= 3 + 1\frac{1}{3} = 4\frac{1}{3}$

d. $1 - \frac{3}{4} = \frac{4}{4} - \frac{3}{4}$

$= \frac{1}{4}$

* Give you child a statement as : $\frac{1}{5} + \frac{2}{5} = \frac{3}{10}$, ask him/her what is the error in this statement. Ask him/her to rewrite it in a right way.

e. $2 - \frac{5}{8} = 1\frac{3}{8}$

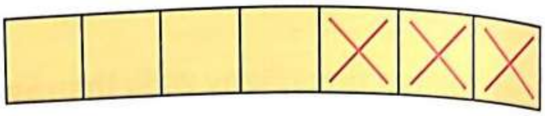


Another Solution

$2 = \frac{16}{8}$ [Because $2 \times 8 = 16$]

$2 - \frac{5}{8} = \frac{16}{8} - \frac{5}{8} = \frac{11}{8} = 1\frac{3}{8}$

f. $1 - \frac{2}{7} - \frac{1}{7} = \frac{4}{7}$



Another Solution

$1 - \frac{2}{7} - \frac{1}{7} = \frac{7}{7} - \frac{2}{7} - \frac{1}{7}$

$= \frac{5}{7} - \frac{1}{7} = \frac{4}{7}$

Check your understanding

Solve each of the following.

a. $1 + \frac{3}{5} + \frac{1}{5} + 2$

b. $2 + 1 + \frac{5}{6} + \frac{2}{6}$

c. $1 - \frac{2}{5}$

d. $2 - \frac{2}{9}$

Notes for parents :

- Help your child to understand how 2 is equal to $\frac{16}{8}$
- Help him/her to draw the circles and divide each one to eight equal parts. Ask him/her to count the all parts which are 16 eighths.

Learn: Add and subtract mixed numbers with like denominators

• Add mixed numbers with like denominator

On Friday, Samy practiced football $2\frac{2}{4}$ hours. On Saturday, he practiced $1\frac{1}{4}$ hours.

How many hours did Samy practice football in the two days ?

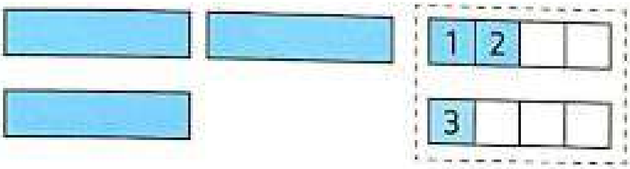
Add. $2\frac{2}{4} + 1\frac{1}{4}$

Step 1

Draw a model for each mixed number.

Add the fractions first. Count the number of fourths shaded.

$$\begin{array}{r} 2\frac{2}{4} \\ +\ 1\frac{1}{4} \\ \hline \frac{3}{4} \end{array}$$



Step 2

Then add the whole numbers.

Count the number of whole rectangles shaded.

$$\begin{array}{r} 2\frac{2}{4} \\ +\ 1\frac{1}{4} \\ \hline 3\frac{3}{4} \end{array}$$

So, Samy practiced football $3\frac{3}{4}$ hours in the two days.

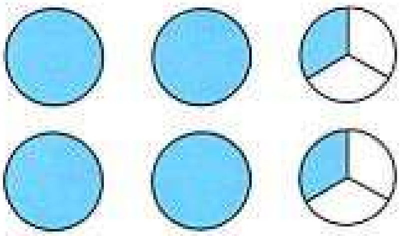
ERROR ALERT

Remember to add the additional whole number if the fractional part of a sum is greater than 1.

More Examples

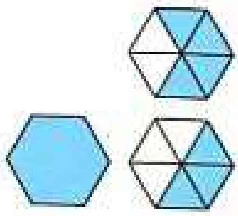
a.

$$\begin{array}{r} 2\frac{1}{3} \\ +\ 2\frac{1}{3} \\ \hline 4\frac{2}{3} \end{array}$$



b.

$$\begin{array}{r} \frac{4}{6} \\ +\ 1\frac{3}{6} \\ \hline 1\frac{7}{6} \end{array} = 1 + 1\frac{1}{6} = 2\frac{1}{6}$$



[Hint : $\frac{7}{6} = 1\frac{1}{6}$]

* Help your child understand that when adding mixed numbers he/she can add whole numbers first then add fractions.

• Subtract mixed numbers with like denominators

Subtracting mixed numbers is similar to adding mixed numbers.

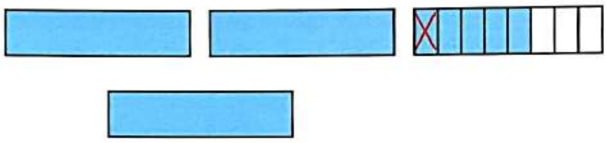
Bassem rode $3\frac{5}{8}$ km on Saturday.
He rode $1\frac{1}{8}$ km on Monday. How much further did he ride on Saturday ?

Subtract. $3\frac{5}{8} - 2\frac{1}{8}$

Step 1

Draw a model for the first mixed number.
Subtract the fractions first.
Cross off 1 of the shaded parts.

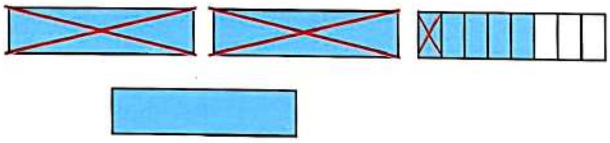
$$\begin{array}{r} 3\frac{5}{8} \\ -\ 2\frac{1}{8} \\ \hline \frac{4}{8} \end{array}$$



Step 2

Then subtract the whole numbers.
Cross off 2 whole rectangles.

$$\begin{array}{r} 3\frac{5}{8} \\ -\ 2\frac{1}{8} \\ \hline 1\frac{4}{8}\ (= 1\frac{1}{2}) \end{array}$$

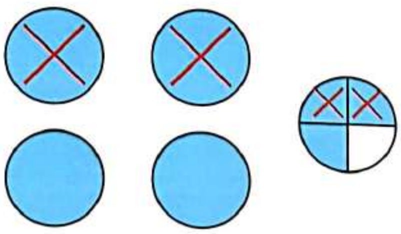


So, Bassem rode $1\frac{4}{8}$ ($1\frac{1}{2}$) on Saturday further than on Monday.

More Examples

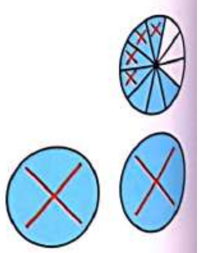
a.

$$\begin{array}{r} 4\frac{3}{4} \\ -\ 2\frac{2}{4} \\ \hline 2\frac{1}{4} \end{array}$$



b.

$$\begin{array}{r} 2\frac{7}{10} \\ -\ 2\frac{4}{10} \\ \hline \frac{3}{10} \end{array}$$



Notes for parents :

• Remind your child that he/she sometimes can subtract whole numbers first, then subtract fractions.

Example 5

Solve each of the following. You may draw models to help.

a. $2\frac{3}{8}+2\frac{2}{8}$

b. $1\frac{4}{5}+\frac{1}{5}$

c. $4\frac{3}{6}+2\frac{4}{6}$

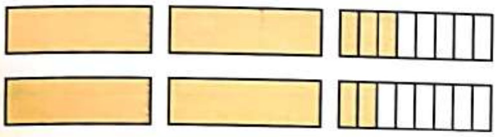
d. $3\frac{3}{5}-2\frac{1}{5}$

e. $6-3\frac{3}{4}$

f. $5\frac{1}{3}-2\frac{2}{3}$

Solution

a. Model:



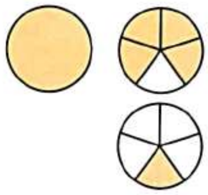
$$\begin{array}{r} 2\frac{3}{8} \\ +\ 2\frac{2}{8} \\ \hline 4\frac{5}{8} \end{array}$$

$= 4$ (whole numbers: $2 + 2$)

Equation: $2\frac{3}{8} + 2\frac{2}{8} = 4\frac{5}{8}$

$= \frac{5}{8}$ (fractions: $\frac{3}{8} + \frac{2}{8}$)

b. Model:

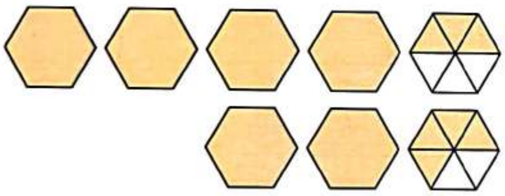


$$\begin{array}{r} 1\frac{4}{5} \\ +\ \frac{1}{5} \\ \hline 1\frac{5}{5} = 2 \end{array}$$

Equation: $1\frac{4}{5}+\frac{1}{5}=1\frac{5}{5}=2$

[Hint: $\frac{5}{5}=1$ So, $1\frac{5}{5}=1+1=2$]

c. Model:

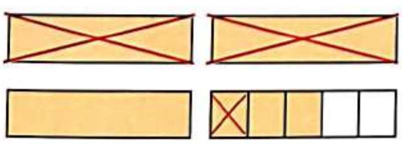


$$\begin{array}{r} 4\frac{3}{6} \\ +\ 2\frac{4}{6} \\ \hline 6\frac{7}{6} = 6+1\frac{1}{6} = 7\frac{1}{6} \end{array}$$

Equation: $4\frac{3}{6} + 2\frac{4}{6} = 6\frac{7}{6}$ [Rename $\frac{7}{6}$ as $1\frac{1}{6}$]

$= 6+1\frac{1}{6} = 7\frac{1}{6}$

d. Model:



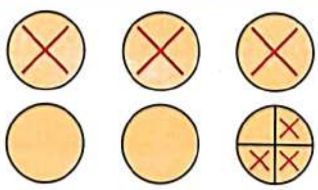
$$\begin{array}{r} 3\frac{3}{5} \\ -\ 2\frac{1}{5} \\ \hline 1\frac{2}{5} \end{array}$$

$= 1$ (whole numbers: $3 - 2$)

Equation: $3\frac{3}{5} - 2\frac{1}{5} = 1\frac{2}{5}$

$= \frac{2}{5}$ (fractions: $\frac{3}{5} - \frac{1}{5}$)

e. Model:



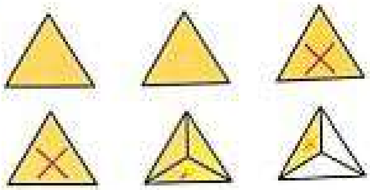
$$\begin{array}{r} 6 \\ -\ 3\frac{3}{4} \\ \hline 2\frac{1}{4} \end{array}$$

Equation: $6-3\frac{3}{4}$ [Rename 6 as $5\frac{4}{4}$]

$= 5\frac{4}{4} - 3\frac{3}{4} = 2\frac{1}{4}$

• Choose any problem in this page, ask your child how he/she can solve it.

f. Model :



$$\begin{array}{r} 5\frac{1}{3} \\ -\ 2\frac{2}{3} \\ \hline 2\frac{2}{3} \end{array}$$

Equation : $5\frac{1}{3} - 2\frac{2}{3}$ The numerator 1 is less than the numerator 2, so you can't subtract

Rename 5 as $4\frac{3}{3}$, so $5\frac{1}{3} = 4\frac{4}{3}$

$5\frac{1}{3} - 2\frac{2}{3} = 4\frac{4}{3} - 2\frac{2}{3} = 2\frac{2}{3}$

$$5\frac{1}{3} = 4\frac{4}{3}$$

$$4\frac{3}{3} + \frac{1}{3}$$

Example 6

Complete each of the following.

a. $2\frac{1}{5} + ____ = 7\frac{4}{5}$ | b. $____ + 1\frac{3}{4} = 3\frac{1}{4}$ | c. $7\frac{2}{3} - ____ = 5\frac{1}{3}$ | d. $____ - 2\frac{3}{7} = 3\frac{2}{7}$

Solution

a. Subtract to find the missing addend

$7\frac{4}{5} - 2\frac{1}{5} = 5\frac{3}{5}$

b. Subtract to find the missing addend

$3\frac{1}{4} - 1\frac{3}{4} = 2\frac{5}{4} - 1\frac{3}{4} = 1\frac{2}{4}$

$3\frac{1}{4} \rightarrow 2\frac{4}{4} + \frac{1}{4}$

c. Subtract to find the missing subtrahend

$7\frac{2}{3} - 5\frac{1}{3} = 2\frac{1}{3}$

d. Add to find the missing minuend

$3\frac{2}{7} + 2\frac{3}{7} = 5\frac{5}{7}$

• Using a number line to add and subtract mixed numbers with like denominators

You can use a number line to add or subtract mixed numbers as in the following example.

Example 7

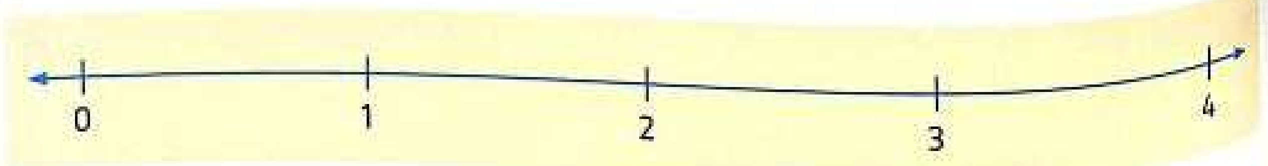
Use a number line to add or subtract.

a. $1\frac{1}{5} + 2\frac{2}{5}$

b. $3\frac{3}{4} - 1\frac{1}{4}$

Solution

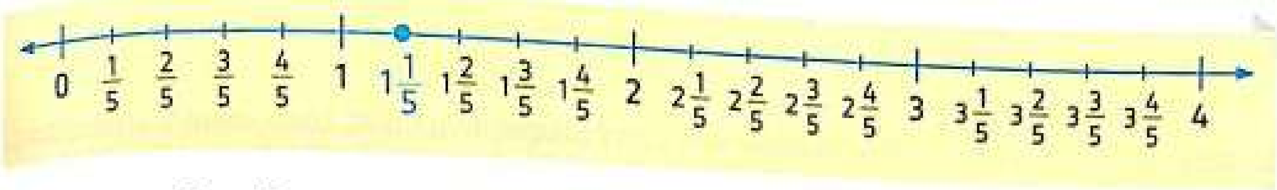
a. • Draw a number line



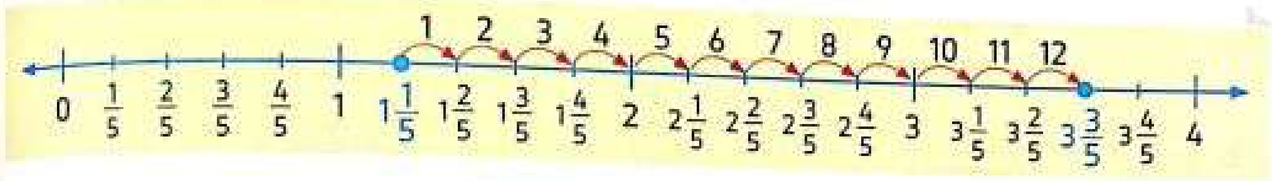
Notes for parents :

• Remind your child that he/she need to divide the distance between the 2 numbers on the number line into equal parts. The number of these parts equal the denominator when dividing the distance into 5 equal parts he/she need to draw 4 small dashes.

- Divide the distance between each two numbers into 5 equal parts, each part represents $\frac{1}{5}$
  Locate $1\frac{1}{5}$ on the number line.

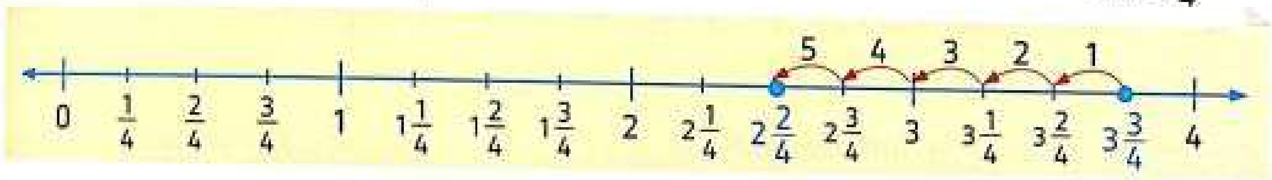


- Rename $2\frac{2}{5}$ as $\frac{12}{5}$. Start at $1\frac{1}{5}$
  Count forward 12 times. You will reach $3\frac{3}{5}$



$$1\frac{1}{5}+2\frac{2}{5}=3\frac{3}{5}$$

b. Divide the distance between each two numbers into 4 equal parts, each part represents $\frac{1}{4}$
Rename $1\frac{1}{4}$ as $\frac{5}{4}$. Start at $3\frac{3}{4}$. Count backward 5 times to subtract. You will reach $2\frac{2}{4}$



$$3\frac{3}{4}-1\frac{1}{4}=2\frac{2}{4}$$

Check your understanding

Model and record the sum or the difference.

a. $5\frac{1}{6}+2\frac{4}{6}$ ____________________

b. $5\frac{3}{8}+1\frac{5}{8}$ ____________________

c. $2\frac{3}{4}+3\frac{3}{4}$ ____________________

d. $3\frac{5}{6}-2\frac{1}{6}$ ____________________

e. $2-1\frac{1}{3}$ ____________________

f. $5\frac{1}{5}-2\frac{3}{5}$ ____________________

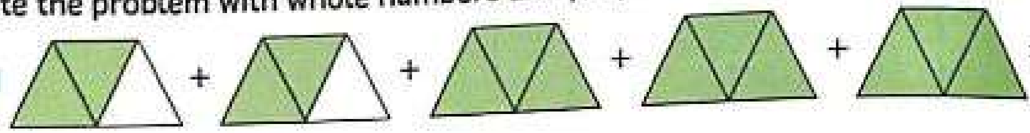
* Ask your child to choose any problem in this page and solve it in more than one way.

Exercise 10

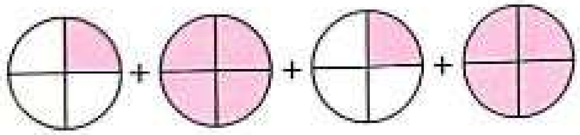
9-5 Pieces From the Whole
9-6 Adding Mixed Numbers
9-7 Subtracting Mixed Numbers

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING 📖 From the school book

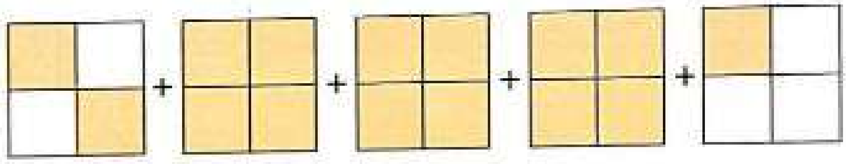
1. Rewrite the problem with whole numbers and proper fractions, then solve the problems.

a. 📖  = ______

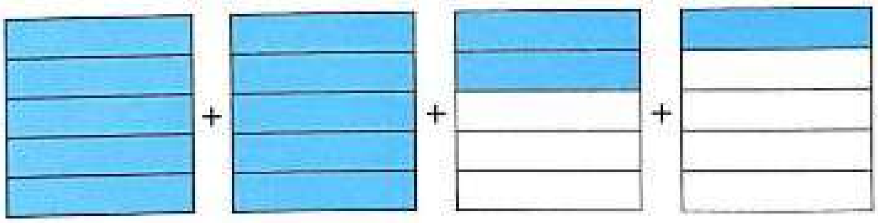
______ + ______ + ______ + ______ + ______ = ______

b.  = ______

______ + ______ + ______ + ______ = ______

c.  = ______

______ + ______ + ______ + ______ + ______ = ______

d.  = ______

______ + ______ + ______ + ______ = ______

2. Solve the following problems using numbers.

a. $1+1+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}=$ ______

b. 📖 $\frac{10}{12}+\frac{1}{12}+3+2=$ ______

c. 📖 $\frac{4}{9}+\frac{1}{9}+\frac{2}{9}+4=$ ______

d. $3+\frac{3}{5}+1+\frac{1}{5}=$ ______

e. $3+4+\frac{1}{2}=$ ______

f. 📖 $\frac{3}{5}+\frac{2}{5}=$ ______

g. 📖 $2+2+\frac{3}{5}+\frac{3}{5}=$ ______

h. 📖 $4+\frac{4}{8}+2+\frac{5}{8}=$ ______

3. Use models to solve the following problems.

a. $1-\frac{3}{4}=$ ______

b. $1-\frac{2}{8}=$ ______

c. $1-\frac{2}{5}-\frac{1}{5}=$ ______

d. $2-\frac{1}{4}=$ ______

e. $2-\frac{4}{5}=$ ______

f. $2-\frac{1}{2}=$ ______

g. $2-\frac{2}{3}=$ ______

h. $3-\frac{1}{3}=$ ______

i. $4-\frac{5}{6}=$ ______

4. Solve the following problems. Show your steps.

a. $\frac{3}{8}+\frac{2}{8}+\frac{7}{8}=$ ______

b. $1+2+\frac{1}{5}+\frac{3}{5}+\frac{4}{5}=$ ______

c. $1-\frac{3}{6}-\frac{1}{6}=$ ______

d. $2-\frac{1}{3}-\frac{1}{3}=$ ______

e. $1+\frac{1}{7}+2+\frac{3}{7}=$ ______

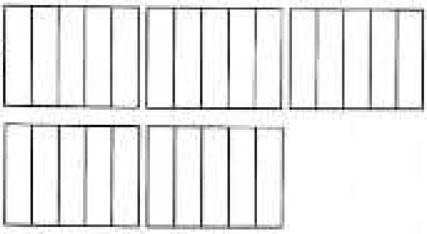
f. $3-\frac{2}{3}-\frac{1}{3}=$ ______

5. Add or subtract mixed numbers. Solve each problem using a number line, a model and an equation. For each model, color the first fraction one color and use a different color for the second fraction.

a. $2\frac{1}{5}+1\frac{2}{5}$

Number line :

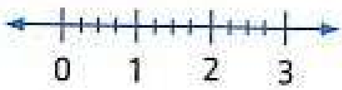
Model :



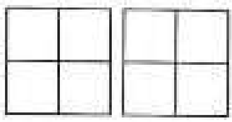
Equation : ______

b. $1\frac{1}{4}+\frac{3}{4}$

Number line :



Model :

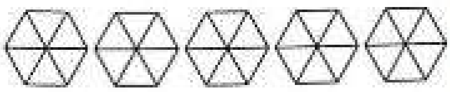


Equation : ______

c. $2\frac{1}{6}+1\frac{5}{6}$

Number line :

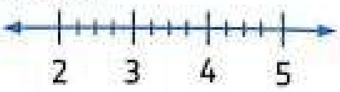
Model :



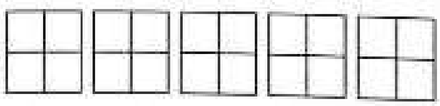
Equation : ______

d. $4\frac{3}{4}-2\frac{1}{4}$

Number line :



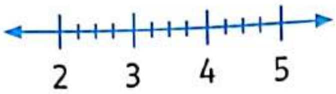
Model :



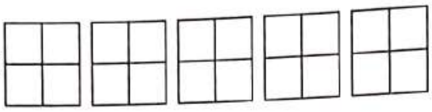
Equation : ______

e. $5-2\frac{1}{4}$

Number line :



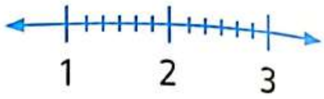
Model :



Equation : ______________________

f. $3-1\frac{1}{6}$

Number line :

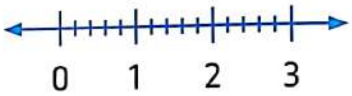


Model :

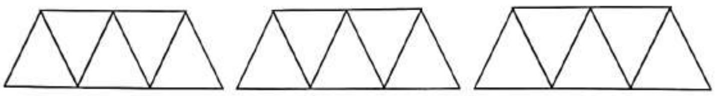
Equation : ______________________

g. $2\frac{1}{5}-1\frac{2}{5}$

Number line :



Model :



Equation : ______________________

6. Solve the following problems using your favorite strategy. (Explain your steps).

a. $2\frac{4}{9}+1\frac{2}{9}$

b. $2\frac{3}{5}+1\frac{4}{5}$

c. $3\frac{1}{4}+2\frac{3}{4}$

d. $1\frac{2}{3}+3\frac{1}{3}$

e. $1\frac{1}{6}+5\frac{5}{6}$

f. $2\frac{4}{7}+3\frac{6}{7}$

g. $3\frac{2}{5}-2\frac{1}{5}$

h. $4\frac{2}{3}-2\frac{1}{3}$

i. $3\frac{5}{8}-2\frac{1}{8}$

j. $3-2\frac{1}{8}$

k. $3\frac{1}{4}-2\frac{3}{4}$

l. $5\frac{1}{6}-3\frac{5}{6}$

7. Complete.

a. $3\frac{2}{5}+$ ______ $=4\frac{3}{5}$

b. $4\frac{5}{6}+$ ______ $=6\frac{5}{6}$

c. $7\frac{5}{9}-$ ______ $=3\frac{1}{9}$

d. ______ $-2\frac{1}{4}=3\frac{2}{4}$

e. ______ $-3\frac{1}{3}=1\frac{1}{3}$

f. $4\frac{4}{5}-$ ______ $=1\frac{1}{5}$

g. ______ $-1\frac{5}{7}=2\frac{3}{7}$

h. ______ $+1\frac{1}{7}=3$

i. $2\frac{3}{4}+$ ______ $=4\frac{1}{4}$

j. $5-$ ______ $=3\frac{1}{4}$

8. Hanan bought $2\frac{3}{4}$ m of red fabric and $1\frac{1}{4}$ of blue. How much cloth did she buy in all ?

9. Sarah drank $1\frac{3}{8}$ litres of water and Azza drank $1\frac{5}{8}$ litres of water. What is the total number of litres that Sarah and Azza drank ?

10. Hady has $3\frac{1}{4}$ cookies, he gave $2\frac{3}{4}$ to his sister. How many cookies does he have left ?

11. Omar bought 1 kilogram of kebab and he ate $\frac{1}{3}$ of it. How much was left ?

12. Fatema is cooking dinner for her family, she needs a whole bottle of oil for frying.
She has a bottle full of $\frac{1}{5}$ and another bottle full of $\frac{3}{5}$.
How much will she need to have one full bottle ?

13. Heba read for two hours. She read with her brother for $\frac{1}{2}$ hour, she read with her sister for $\frac{1}{2}$ hour.
And she read alone for the rest of the time.
How long has she read alone ?

14. Badr bought $1\frac{1}{2}$ kilograms of flour, $\frac{1}{2}$ kilogram of sugar and $2\frac{1}{2}$ kilograms of rice from the market.
What is the total mass of the things he bought in kilograms ?

15. Ezz bakes a cake for his grandmother.

If he has $2\frac{1}{4}$ pans of butter, and the recipe needs $1\frac{2}{4}$ pans of butter. How much butter left will he has ?

16. Nadia is making falafel for a party.

Her recipe calls for $\frac{1}{2}$ teaspoon sodium bicarbonate. The recipe makes enough for 10 people. Nadia is having 40 guests. In order to feed all her guests, she wants to quadruple her recipe. How many teaspoons of sodium bicarbonate will she use ?

17. A square of side length $1\frac{1}{4}$ m. What is the perimeter of this square ?

18. A rectangle of $3\frac{1}{5}$ cm length and $1\frac{1}{5}$ cm width. Calculate its perimeter.

Challenge

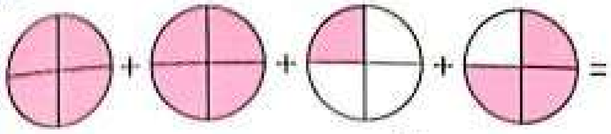
19. Write and solve your own addition story problem. You can use one of the equations provided to create your own.

$2\frac{2}{9} + 3\frac{5}{9}$ | $1\frac{4}{5} + 2\frac{1}{5}$ | $3\frac{3}{10} + 1\frac{9}{10}$

20. Three sides of parking lot are measured to the following lengths : $3\frac{1}{8}$ km, $5\frac{3}{8}$ km, and $4\frac{5}{8}$ km. If the distance around the lot is 20 km. Find the fourth side length.

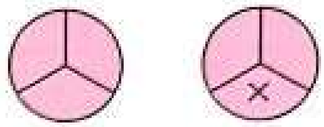
Multiple Choice Questions

Choose the correct answer.

1.  = ...

A. $2\frac{1}{4}$ B. $2\frac{1}{2}$ C. $2\frac{3}{4}$ D. 3

2. Which of following equations represent the opposite model ?



A. $2-\frac{1}{3}=\frac{5}{3}$ B. $2-\frac{1}{3}=\frac{5}{6}$

C. $1-\frac{1}{3}=\frac{3}{5}$ D. $1-\frac{1}{3}=\frac{5}{6}$

3. $3+\frac{3}{7}+1+\frac{1}{7}=$ ....

A. $\frac{47}{7}$ B. $4\frac{2}{7}$

C. $4\frac{4}{7}$ D. $5\frac{5}{7}$

4. $1-\frac{3}{5}=$ ....

A. $1\frac{3}{5}$ B. $\frac{2}{5}$

C. $\frac{3}{5}$ D. $1\frac{2}{5}$

5. $2\frac{1}{5}+1\frac{2}{5}=$ ....

A. $3\frac{3}{5}$ B. $2\frac{2}{5}$

C. $4\frac{4}{5}$ D. 4

6. $3-2\frac{1}{4}=$ ....

A. $1\frac{3}{4}$ B. $2\frac{3}{4}$

C. $\frac{3}{4}$ D. $5\frac{1}{4}$

7. $5\frac{5}{9}-2\frac{1}{9}=$ ....

A. $3\frac{4}{0}$ B. $3\frac{4}{9}$

C. $7\frac{4}{9}$ D. $7\frac{6}{9}$

8. $4+\frac{4}{3}=$ ....

A. $4\frac{1}{3}$ B. $\frac{16}{4}$

C. $\frac{12}{3}$ D. $5\frac{1}{3}$

9. Which one of the following statements in not true ?

A. $5\frac{1}{4}=\frac{21}{4}$ B. $5\frac{1}{4}=3\frac{9}{4}$

C. $5\frac{1}{4}=4\frac{4}{5}$ D. $5\frac{1}{4}=4\frac{5}{4}$

10. $2\frac{1}{6}+1\frac{2}{6}=$ ....

(Use a model to solve)

A. $1\frac{1}{6}$ B. $3\frac{1}{2}$

C. $3\frac{12}{6}$ D. $4\frac{1}{6}$

11. An equilateral triangle measures $3\frac{1}{2}$ cm on one side. What is the perimeter of the triangle ?

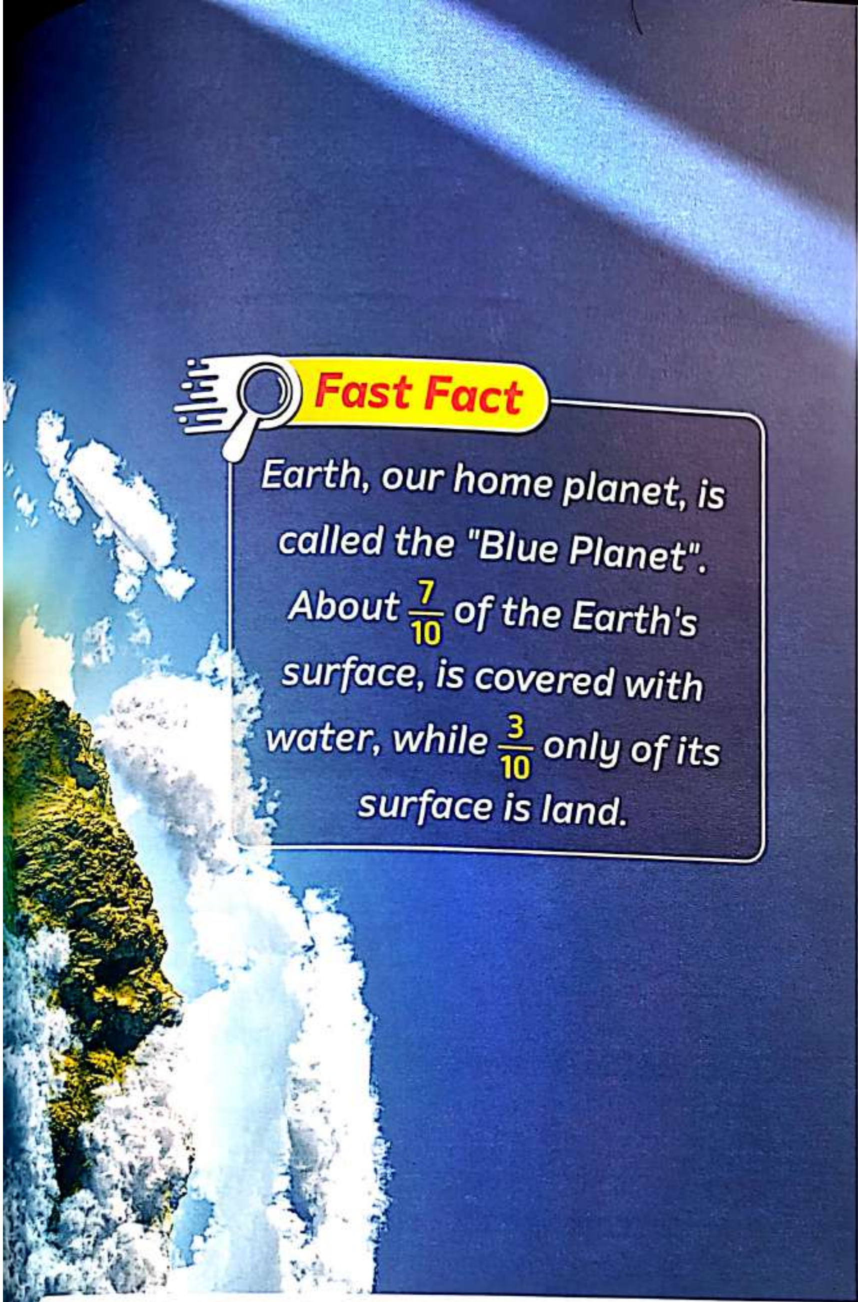
A. 10 cm B. $10\frac{1}{2}$ cm C. 14 cm D. $10\frac{1}{2}$ cm^2

12. Sameh worked $2\frac{3}{4}$ hours and Ayman worked $3\frac{1}{4}$ hours. What is the total time they worked ?

A. $1\frac{2}{4}$ hours B. 5 hours C. $5\frac{1}{4}$ hours D. 6 hours

Concept

2 Comparing Fractions



Fast Fact

Earth, our home planet, is called the "Blue Planet". About $\frac{7}{10}$ of the Earth's surface, is covered with water, while $\frac{3}{10}$ only of its surface is land.

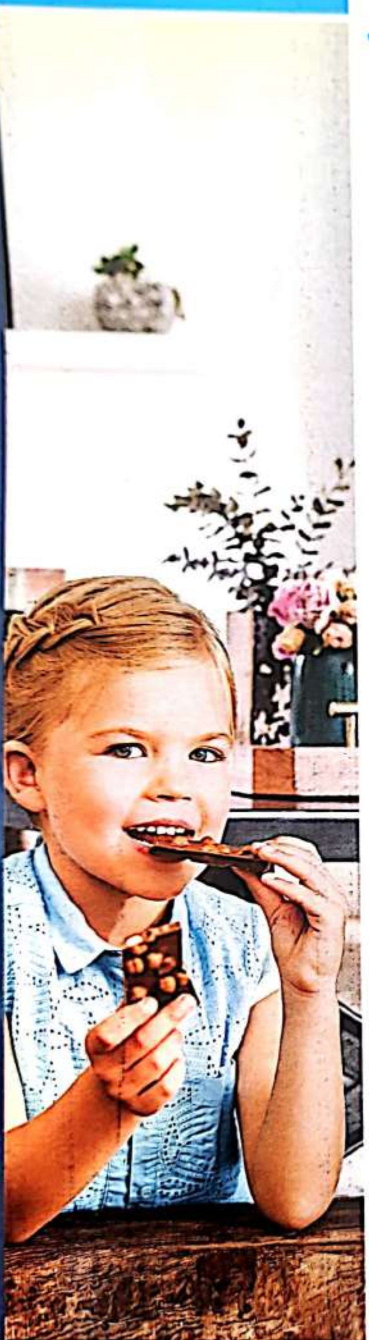
Concept Overview

In concept 2 :

Comparing Fractions, students extend their understanding of fraction equivalence and ordering, initially comparing and ordering fractions with like denominators and numerators. This is extended to improper fractions and mixed numbers before moving into identifying and creating equivalent fractions. Next, students explore benchmark fractions [0 , $\frac{1}{2}$, 1]. They create equivalent fractions to match benchmarks, comparing fractions using the benchmarks in bare number and story problems. They also demonstrate an understanding that fraction comparisons are valid only if the two fractions refer to the same whole.

Lesson No.	Lesson Name	Vocabulary Terms	Learning Objectives
Lesson 4	9-8 Like Denominators and Numerators	Like denominator - Denominator - Numerator - Order	• Students will compare and order fractions with like denominators. • Students will compare and order fractions with like numerators.
Lesson 5	9-9 Class $\frac{1}{2}$ Full or $\frac{2}{4}$ Empty ?	Equivalence	• Students will use visual models to identify equivalent fractions.
	9-10 Same Fraction, Different Day	Equivalenent	• Students will use visual models and multiples to generate equivalent fractions. • Students will explain what makes two fractions equivalent.
Lesson 6	9-11 Benchmark Fractions	Benchmark fraction - Equivalence	• Students will identify benchmark fractions. • Students will generate fractions equivalent to benchmark fractions.
	9-12 Half or Whole ?	Compare - Equivalent - Benchmark	• Students will compare fractions to a benchmark fraction.

Lesson 4



9-8 Like Denominators and Numerators

Learn

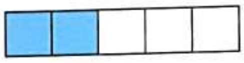
First Compare and order fractions with like denominators

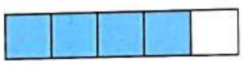
Sara and Laila had two identical bars of chocolate.

Sara ate $\frac{2}{5}$ of her bar. Laila ate $\frac{4}{5}$ of her bar.

Who ate the greater part ?

Model $\frac{2}{5}$ and $\frac{4}{5}$ (The colored part shows what each one ate)

Sara  $\frac{2}{5}$

Laila  $\frac{4}{5}$

By comparing the colored parts, $2 < 4$

So, $\boxed{\frac{2}{5} < \frac{4}{5}}$ **So, Laila ate the greater part.**

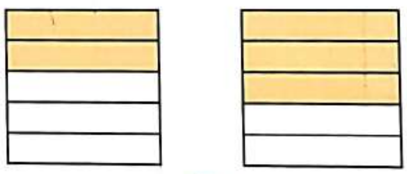
> **ERROR ALERT**
> When you compare two fractions, make sure the wholes are the same size.

Example 1

Write the fractions which represent the colored parts.

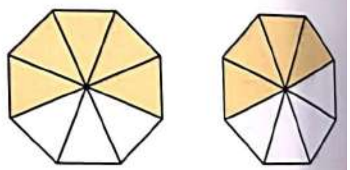
Compare fractions using "< , = or >".

a.



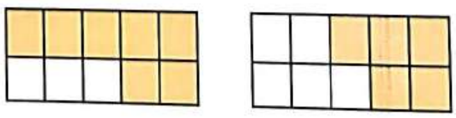
______ ◯ ______

b.



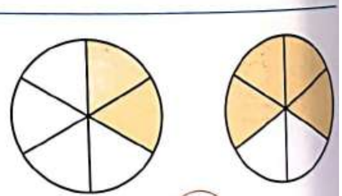
______ ◯ ______

c.



______ ◯ ______

d.



______ ◯ ______

Solution

a. $\frac{2}{5}$ (<) $\frac{3}{5}$ | b. $\frac{5}{8}$ (>) $\frac{4}{8}$ | c. $\frac{7}{10}$ (>) $\frac{5}{10}$ | d. $\frac{2}{6}$ (<) $\frac{4}{6}$

Notes for parents :

- Ask your child to draw a model to compare $\frac{3}{4}$ and $\frac{2}{4}$.

MATH IDEA

When you compare fractions with **like denominators**, only **compare the numerators**. The one with the greater numerator is the greater.

For example :

$\frac{5}{7} > \frac{3}{7}$ because they have the same denominator "7" and $5 > 3$

Example 2

Compare the following fractions using “$>$, $<$ or $=$”.

a. $\frac{1}{4}$ ◯ $\frac{3}{4}$ | b. $\frac{5}{7}$ ◯ $\frac{2}{7}$ | c. $\frac{3}{8}$ ◯ $\frac{5}{8}$ | d. $\frac{3}{12}$ ◯ $\frac{6}{12}$

Solution

a. $<$ [Because $1 < 3$]

b. $>$ [Because $5 > 2$]

c. $<$ [Because $3 < 5$]

d. $<$ [Because $3 < 6$]

Example 3

Write $\frac{7}{9}$, $\frac{1}{9}$, $\frac{6}{9}$, $\frac{2}{9}$ and $\frac{4}{9}$ in an ascending order.

Solution

$\frac{1}{9}$, $\frac{2}{9}$, $\frac{4}{9}$, $\frac{6}{9}$, $\frac{7}{9}$

Because the fractions have the same denominator "9" and $1 < 2 < 4 < 6 < 7$

Remember

Ascending order is ordering numbers from least to greatest.

Check your understanding

1. Compare. Write “$>$, $<$ or $=$” for each ☐.

a. $\frac{3}{6}$ ☐ $\frac{5}{6}$ | b. $\frac{1}{10}$ ☐ $\frac{7}{10}$ | c. $\frac{7}{12}$ ☐ $\frac{5}{12}$

2. Write the fractions in an ascending order.

a. $\frac{2}{7}$, $\frac{5}{7}$, $\frac{1}{7}$ and $\frac{4}{7}$ ____________________

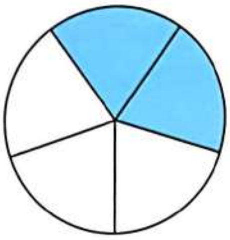
b. $\frac{9}{12}$, $\frac{1}{12}$, $\frac{6}{12}$, $\frac{8}{12}$ and $\frac{3}{12}$ ____________________

• Ask your child to compare numerators to determine which fraction is greater when comparing fractions with like denominators.

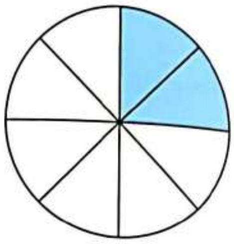
Second Compare and order fractions with like numerators

How can you compare $\frac{2}{5}$ and $\frac{2}{8}$?

$\frac{2}{5}$



$\frac{2}{8}$



By comparing the colored parts, you get $\frac{2}{5} > \frac{2}{8}$

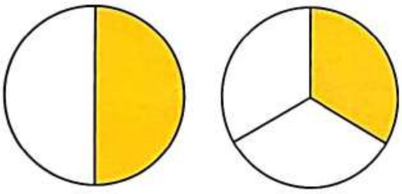
ERROR ALERT

When you compare two fractions, make sure the wholes are the same size.

Example 4

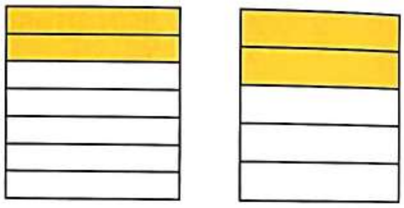
Write the fractions which represent the colored parts , then compare fractions using "< , = or >".

a.



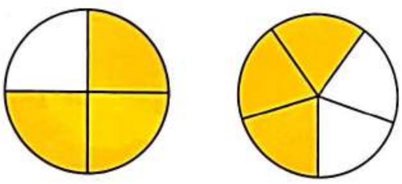
____ ○ ____

b.



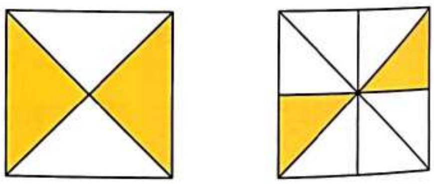
____ ○ ____

c.



____ ○ ____

d.



____ ○ ____

Solution

a. $\frac{1}{2} > \frac{1}{3}$ | **b.** $\frac{2}{7} < \frac{2}{5}$ | **c.** $\frac{3}{4} > \frac{3}{5}$ | **d.** $\frac{2}{4} > \frac{2}{8}$

Notes for parents :

- Ask your child to draw a model to compare $\frac{3}{4}$ and $\frac{3}{6}$

MATH IDEA

When you compare fractions with **like numerators**, only **compare the denominators**. The one with the greater denominator is the smaller.

For example :

$\frac{2}{5} < \frac{2}{3}$ because they have the same numerator "2" and $5 > 3$

Example 5

Compare the following fractions using "< , > or =".

a. $\frac{1}{7} \bigcirc \frac{1}{9}$ | b. $\frac{4}{12} \bigcirc \frac{4}{6}$ | c. $\frac{3}{5} \bigcirc \frac{3}{10}$ | d. $\frac{5}{11} \bigcirc \frac{5}{5}$

Solution

a. $>$ [Because $9 > 7$]

b. $<$ [Because $12 > 6$]

c. $>$ [Because $10 > 5$]

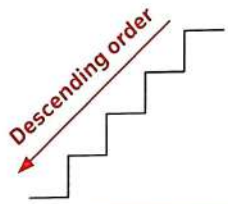
d. $<$ [Because $11 > 5$]

Example 6

Write $\frac{3}{12}$, $\frac{3}{7}$, $\frac{3}{9}$, $\frac{3}{5}$ and $\frac{3}{10}$ in a descending order.

Remember

Descending order is ordering numbers from greatest to least.



Solution

$\frac{3}{5}$, $\frac{3}{7}$, $\frac{3}{9}$, $\frac{3}{10}$, $\frac{3}{12}$

Because the fractions have the same numerator "3" and $5 < 7 < 9 < 10 < 12$

Check your understanding

1. Compare. Write ">, < or =" for each $\square$

a. $\frac{3}{6} \square \frac{3}{7}$ | b. $\frac{5}{12} \square \frac{5}{10}$ | c. $\frac{7}{13} \square \frac{7}{9}$

2. Write the fractions in a descending order.

a. $\frac{2}{8}$, $\frac{2}{10}$, $\frac{2}{4}$ and $\frac{2}{5}$ ____________________

b. $\frac{4}{7}$, $\frac{4}{11}$, $\frac{4}{5}$, $\frac{4}{8}$ and $\frac{4}{6}$ ____________________

• Ask your child to compare denominators to determine which fraction is greater when comparing fractions with like numerators.

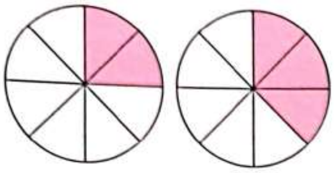
Exercise 11

9-8 Like Denominators and Numerators

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | From the school book

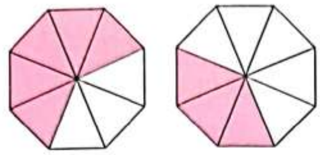
1. Write the fractions which represent the colored parts, then compare each pair of fractions using the symbols "> , < or =".

a.



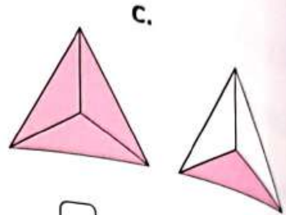
$\frac{\square}{\square} \bigcirc \frac{\square}{\square}$

b.



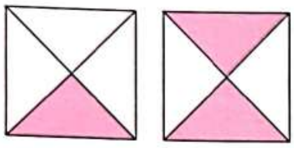
$\frac{\square}{\square} \bigcirc \frac{\square}{\square}$

c.



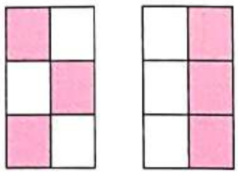
$\frac{\square}{\square} \bigcirc \frac{\square}{\square}$

d.



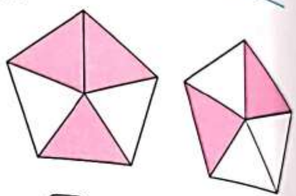
$\frac{\square}{\square} \bigcirc \frac{\square}{\square}$

e.



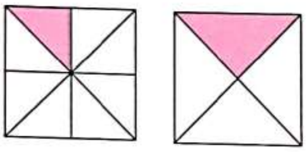
$\frac{\square}{\square} \bigcirc \frac{\square}{\square}$

f.



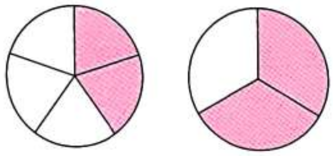
$\frac{\square}{\square} \bigcirc \frac{\square}{\square}$

g.



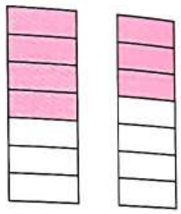
$\frac{\square}{\square} \bigcirc \frac{\square}{\square}$

h. (From the school book)



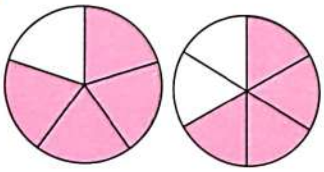
$\frac{\square}{\square} \bigcirc \frac{\square}{\square}$

i.



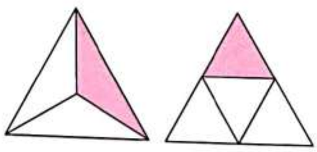
$\frac{\square}{\square} \bigcirc \frac{\square}{\square}$

j. (From the school book)



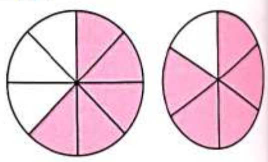
$\frac{\square}{\square} \bigcirc \frac{\square}{\square}$

k.



$\frac{\square}{\square} \bigcirc \frac{\square}{\square}$

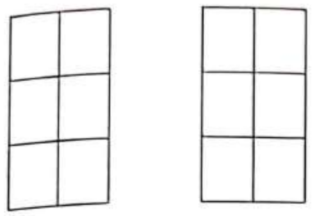
l. (From the school book)



$\frac{\square}{\square} \bigcirc \frac{\square}{\square}$

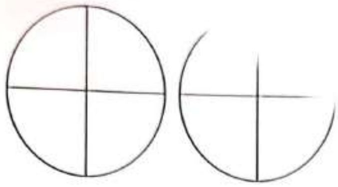
2. Shade each shape to show the given fraction, then compare the fractions using the symbols ">, < or =".

a.



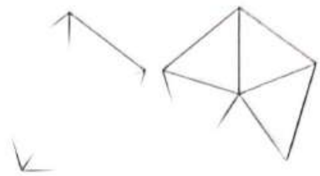
$\frac{1}{6}$ ☐ $\frac{4}{6}$

b.



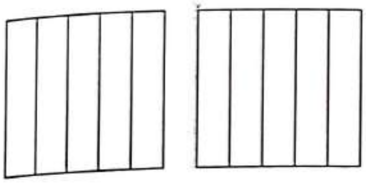
$\frac{1}{4}$ ☐ $\frac{3}{4}$

c.



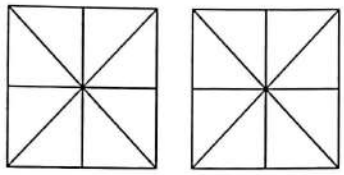
$\frac{3}{5}$ ☐ 5

d.



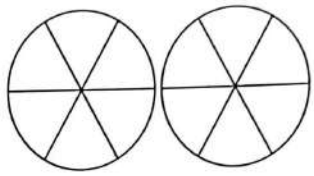
$\frac{3}{5}$ ☐ $\frac{5}{5}$

e.



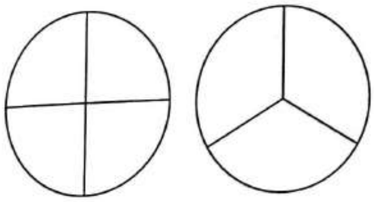
$\frac{1}{8}$ ☐ $\frac{7}{8}$

f.



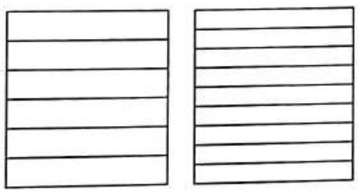
$\frac{5}{6}$ ☐ $\frac{4}{6}$

g.



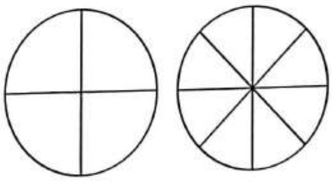
$\frac{2}{4}$ ☐ $\frac{2}{3}$

h.



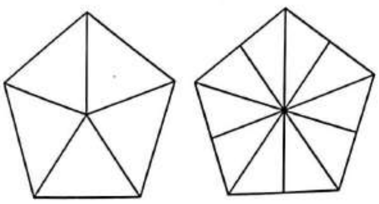
$\frac{3}{6}$ ☐ $\frac{3}{9}$

i.



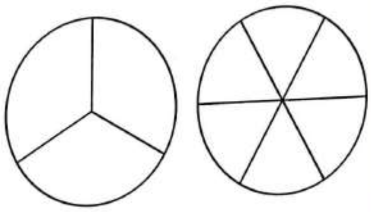
$\frac{1}{4}$ ☐ $\frac{1}{8}$

j.



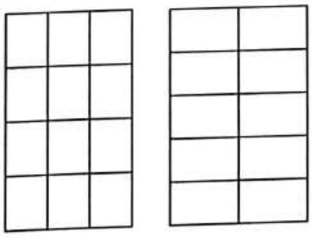
$\frac{3}{5}$ ☐ $\frac{3}{10}$

k.



$\frac{2}{3}$ ☐ $\frac{2}{6}$

l.



$\frac{6}{12}$ ☐ $\frac{6}{10}$

3. Compare. Write "> , < or =".

a. $\frac{2}{3}$ ☐ $\frac{1}{3}$
b. $\frac{5}{12}$ ☐ $\frac{6}{12}$
c. $\frac{4}{7}$ ☐ $\frac{5}{7}$
d. $\frac{3}{8}$ ☐ $\frac{5}{8}$
e. $\frac{10}{11}$ ☐ $\frac{11}{11}$
f. $\frac{1}{4}$ ☐ $\frac{3}{4}$
g. $\frac{1}{10}$ ☐ $\frac{5}{10}$
h. $\frac{2}{9}$ ☐ $\frac{4}{9}$
i. $\frac{8}{8}$ ☐ $\frac{6}{8}$
j. $\frac{1}{5}$ ☐ $\frac{1}{14}$
k. $\frac{2}{2}$ ☐ $\frac{2}{7}$
l. $\frac{3}{6}$ ☐ $\frac{3}{4}$
m. $\frac{2}{9}$ ☐ $\frac{2}{7}$
n. $\frac{4}{8}$ ☐ $\frac{4}{5}$
o. $\frac{4}{7}$ ☐ $\frac{4}{10}$
p. $\frac{5}{6}$ ☐ $\frac{5}{8}$
q. $\frac{6}{6}$ ☐ $\frac{6}{7}$
r. $\frac{7}{9}$ ☐ $\frac{7}{7}$

4. Circle the correct fraction.

a. $\frac{2}{4} >$ ☐ $\left[\frac{2}{3} \text{ or } \frac{2}{5} \text{ or } \frac{2}{2}\right]$
b. $\frac{1}{5} <$ ☐ $\left[\frac{1}{6} \text{ or } \frac{1}{8} \text{ or } \frac{1}{4}\right]$
c. ☐ $< \frac{3}{7}$ $\left[\frac{3}{8} \text{ or } \frac{3}{3} \text{ or } \frac{3}{6}\right]$
d. $\frac{4}{6} >$ ☐ $\left[\frac{4}{5} \text{ or } \frac{4}{4} \text{ or } \frac{4}{9}\right]$
e. $\frac{5}{10} <$ ☐ $\left[\frac{5}{8} \text{ or } \frac{5}{11} \text{ or } \frac{5}{15}\right]$
f. ☐ $> \frac{6}{7}$ $\left[\frac{6}{8} \text{ or } \frac{6}{6} \text{ or } \frac{6}{9}\right]$
g. $\frac{3}{5} <$ ☐ $\left[\frac{1}{5} \text{ or } \frac{2}{5} \text{ or } \frac{4}{5}\right]$
h. $\frac{7}{10} <$ ☐ $\left[\frac{8}{10} \text{ or } \frac{5}{10} \text{ or } \frac{6}{10}\right]$
i. ☐ $< \frac{4}{9}$ $\left[\frac{5}{9} \text{ or } \frac{3}{9} \text{ or } \frac{9}{9}\right]$
j. ☐ $> \frac{8}{11}$ $\left[\frac{1}{11} \text{ or } \frac{11}{11} \text{ or } \frac{7}{11}\right]$
k. $\frac{5}{8} >$ ☐ $\left[\frac{6}{8} \text{ or } \frac{3}{8} \text{ or } \frac{8}{8}\right]$
l. $\frac{4}{6} <$ ☐ $\left[\frac{4}{7} \text{ or } \frac{5}{6} \text{ or } \frac{3}{6}\right]$

5. Order the following fractions in an ascending order.

a. $\frac{3}{5}$, $\frac{1}{5}$, $\frac{4}{5}$, $\frac{2}{5}$

b. $\frac{3}{6}$, $\frac{2}{6}$, $\frac{5}{6}$, $\frac{1}{6}$, $\frac{4}{6}$

c. $\frac{6}{8}$, $\frac{2}{8}$, $\frac{5}{8}$, $\frac{3}{8}$, $\frac{7}{8}$, $\frac{1}{8}$, $\frac{8}{8}$

d. $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{1}{5}$

e. $\frac{2}{7}$, $\frac{2}{4}$, $\frac{2}{5}$, $\frac{2}{8}$, $\frac{2}{3}$, $\frac{2}{12}$, $\frac{2}{6}$

f. $\frac{3}{5}$, $\frac{3}{8}$, $\frac{3}{3}$, $\frac{3}{6}$, $\frac{3}{12}$

6. Order the following fractions in a descending order.

a. $\frac{3}{7}$, $\frac{1}{7}$, $\frac{5}{7}$, $\frac{4}{7}$

b. $\frac{2}{11}$, $\frac{5}{11}$, $\frac{7}{11}$, $\frac{4}{11}$, $\frac{3}{11}$

c. $\frac{9}{10}$, $\frac{6}{10}$, $\frac{7}{10}$, $\frac{5}{10}$, $\frac{2}{10}$

d. $\frac{1}{7}$, $\frac{1}{5}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{10}$

e. $\frac{2}{5}$, $\frac{2}{9}$, $\frac{2}{7}$, $\frac{2}{3}$, $\frac{2}{10}$

f. $\frac{5}{11}$, $\frac{5}{6}$, $\frac{5}{7}$, $\frac{5}{9}$, $\frac{5}{5}$

7. Put (✓) to the correct statement and (✗) to the incorrect one.

a. $\frac{3}{7} > \frac{1}{7}$ [ ]

b. $\frac{2}{5} < \frac{2}{7}$ [ ]

c. $\frac{1}{5} > \frac{1}{10}$ [ ]

d. $\frac{7}{10} < \frac{4}{10}$ [ ]

e. $\frac{5}{5} < 1$ [ ]

f. $1 < \frac{9}{9}$ [ ]

g. $\frac{5}{5} = \frac{7}{7}$ [ ]

h. $\frac{1}{10} + \frac{1}{10} > \frac{1}{5} + \frac{1}{5}$ [ ]

i. The fractions $\frac{1}{10}$, $\frac{1}{7}$, $\frac{1}{5}$, $\frac{1}{4}$, $\frac{1}{3}$ are in an ascending order. [ ]

j. The fractions $\frac{8}{9}$, $\frac{7}{9}$, $\frac{5}{9}$, $\frac{3}{9}$, $\frac{1}{9}$ are in a descending order. [ ]

8. Compare the fraction.

a. $\frac{4}{7}$ ☐ $\frac{4}{3}$

b. $\frac{5}{10}$ ☐ $\frac{5}{2}$

c. Do the improper fractions follow the same rule you wrote about how to compare fractions with common numerators ? How do you know ? Use a model to explain your thinking.

____

____

____

9. Fractional Candy Bars :

Would you rather have $\frac{5}{12}$ of a candy bar of $\frac{6}{12}$? Use numbers, pictures, or words to explain your thinking.

____

____

____

10. Compare the following fractions using greater than (>) or smaller than (<), then order from the least to the greatest.

a. $\frac{4}{8}$ ☐ $\frac{1}{8}$ | $\frac{7}{8}$ ☐ $\frac{3}{8}$ | $\frac{2}{8}$ ☐ $\frac{6}{8}$

The order is : ______ , ______ , ______ , ______ , ______ , ______

b. $\frac{4}{1}$ ☐ $\frac{4}{5}$ | $\frac{4}{8}$ ☐ $\frac{4}{4}$ | $\frac{4}{9}$ ☐ $\frac{4}{10}$

The order is : ______ , ______ , ______ , ______ , ______ , ______

c. $\frac{1}{9}$ ☐ $\frac{9}{9}$ | $\frac{4}{9}$ ☐ $\frac{8}{9}$ | $\frac{6}{9}$ ☐ $\frac{5}{9}$

The order is : ______ , ______ , ______ , ______ , ______ , ______

d. $\frac{5}{15}$ ☐ $\frac{5}{8}$ | $\frac{5}{5}$ ☐ $\frac{5}{10}$ | $\frac{5}{9}$ ☐ $\frac{5}{12}$

The order is : ______ , ______ , ______ , ______ , ______ , ______

11. Hady and Ahmed were playing football. Hady scored goals of $\frac{2}{3}$ his football shots while Ahmed scored goals of $\frac{2}{4}$ his football shots. If they made the same number of football shots. Who scored more goals. Use model to explain your thinking.

____

____

____

12. Ganna ate $\frac{3}{6}$ of her kofta and kabab plate. Lamia ate $\frac{3}{4}$ of her plate. If the two plates of kofta and kabab with the same size, who ate more ? Use model to explain your thinking.

____

____

____

Challenge

13. Read the following story problem and solve from ⓐ to ⓓ.

Sherouk, Yehia and Ziad bought 3 chocolate bars, while they back home. Sherouk ate $\frac{2}{15}$ of her chocolate bar, Yehia ate $\frac{7}{15}$ of his chocolate bar while Ziad ate $\frac{4}{15}$ of his bar. In the next day Sherouk ate $\frac{7}{15}$, Yehia ate $\frac{8}{15}$, and Ziad ate $\frac{10}{15}$

a. What is the amount of chocolate did each person eat ?

____

____

b. What is the remainder amount of chocolate for each person ?

____

____

c. Who has the greatest remainder amount of chocolate ?

____

____

d. Who has the least remainder amount of chocolate ?

____

____

Multiple Choice Questions

Choose the correct answer.

1. Which of the following fractions is the least?

A. $\frac{1}{5}$ B. $\frac{2}{5}$
C. $\frac{3}{5}$ D. $\frac{4}{5}$

2. Which of the following fractions is the greatest?

A. $\frac{3}{5}$ B. $\frac{3}{6}$
C. $\frac{3}{7}$ D. $\frac{3}{8}$

3. Which of the following fractions is the greatest?

A. $\frac{2}{7}$ B. $\frac{3}{7}$
C. $\frac{5}{7}$ D. $\frac{7}{7}$

4. Which of the following fractions is the least?

A. $\frac{4}{6}$ B. $\frac{4}{7}$
C. $\frac{4}{8}$ D. $\frac{4}{9}$

5. Which of the following sentences is wrong?

A. $\frac{1}{3} > \frac{1}{4}$ B. $\frac{1}{4} > \frac{1}{5}$
C. $\frac{1}{5} < \frac{1}{6}$ D. $\frac{1}{8} < \frac{1}{7}$

6. Which of the following sentences is right?

A. $\frac{2}{2} < \frac{2}{5}$ B. $\frac{2}{8} < \frac{2}{9}$
C. $\frac{2}{3} < \frac{2}{4}$ D. $\frac{2}{5} > \frac{2}{6}$

7. Which of the following sentences is **NOT** true?

A. $\frac{2}{5} > \frac{4}{5}$ B. $\frac{1}{6} < \frac{3}{6}$
C. $\frac{6}{7} < \frac{7}{7}$ D. $\frac{5}{8} > \frac{3}{8}$

8. Which of the following sentences is true?

A. $\frac{2}{3} > \frac{3}{3}$ B. $\frac{1}{4} > \frac{2}{4}$
C. $\frac{6}{9} < \frac{4}{9}$ D. $\frac{3}{10} < \frac{5}{10}$

9. Which choice shows the fractions in an ascending order?

A. $\frac{2}{12}, \frac{4}{12}, \frac{6}{12}, \frac{5}{12}, \frac{8}{12}$ B. $\frac{2}{12}, \frac{4}{12}, \frac{5}{12}, \frac{6}{12}, \frac{8}{12}$
C. $\frac{2}{12}, \frac{4}{12}, \frac{6}{12}, \frac{8}{12}, \frac{5}{12}$ D. $\frac{8}{12}, \frac{6}{12}, \frac{5}{12}, \frac{4}{12}, \frac{2}{12}$

10. Which choice shows the fractions in a descending order?

A. $\frac{3}{10}, \frac{3}{9}, \frac{3}{7}, \frac{3}{5}, \frac{3}{3}$ B. $\frac{3}{5}, \frac{3}{7}, \frac{3}{9}, \frac{3}{10}, \frac{3}{3}$
C. $\frac{3}{3}, \frac{3}{5}, \frac{3}{7}, \frac{3}{9}, \frac{3}{10}$ D. $\frac{3}{3}, \frac{3}{10}, \frac{3}{9}, \frac{3}{7}, \frac{3}{5}$

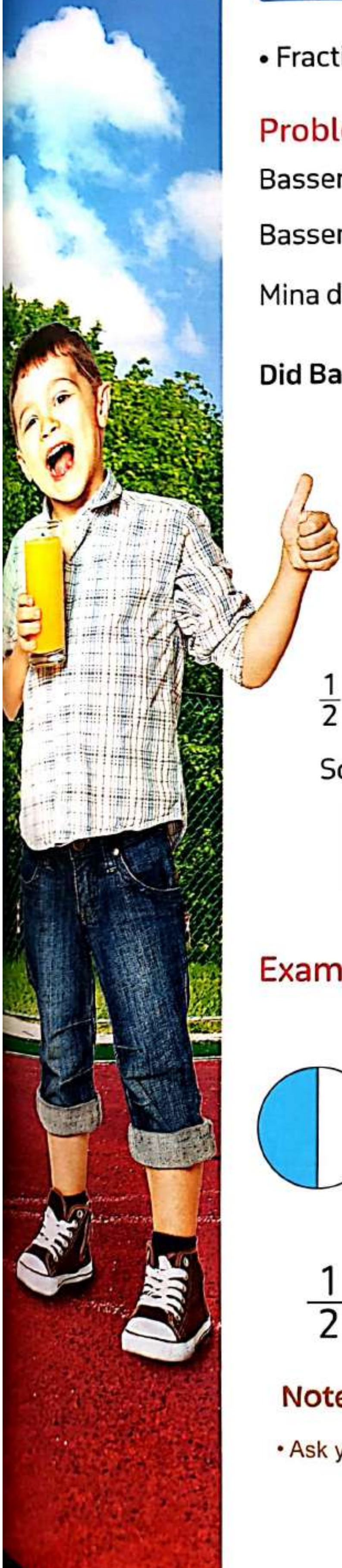
Lesson 5

9-9 Glass $\frac{1}{2}$ Full or $\frac{2}{4}$ Empty ?

9-10 Same Fraction, Different Day

Learn Equivalent fractions

- Fractions that name the same amount are called **equivalent fractions**.



Problem

Bassem and Mina each had 1 liter of juice.

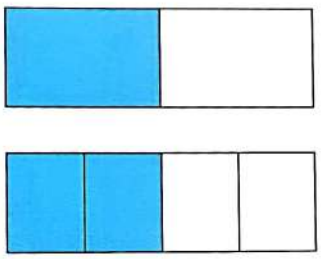
Bassem drank $\frac{1}{2}$ of his liter.

Mina drank $\frac{2}{4}$ of his liter.

Did Bassem and Mina drink the same amount ?

What Bassem drank — $\frac{1}{2}$

What Mina drank — $\frac{2}{4}$

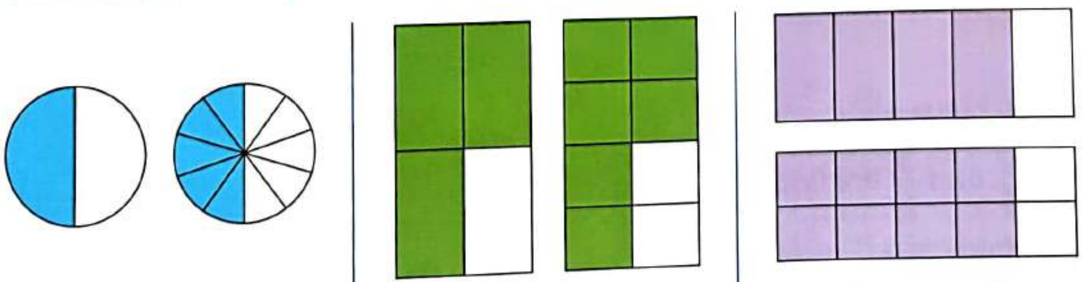


$\frac{1}{2}$ and $\frac{2}{4}$ show the same amount.

So, Bassem and Mina drank the same amount.

$\frac{1}{2}$ and $\frac{2}{4}$ are equivalent fractions $\frac{1}{2} = \frac{2}{4}$

Examples for equivalent fractions

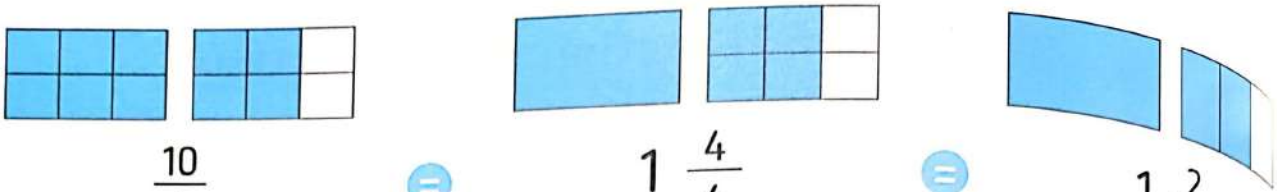


$\frac{1}{2} = \frac{5}{10}$ | $\frac{3}{4} = \frac{6}{8}$ | $\frac{4}{5} = \frac{8}{10}$

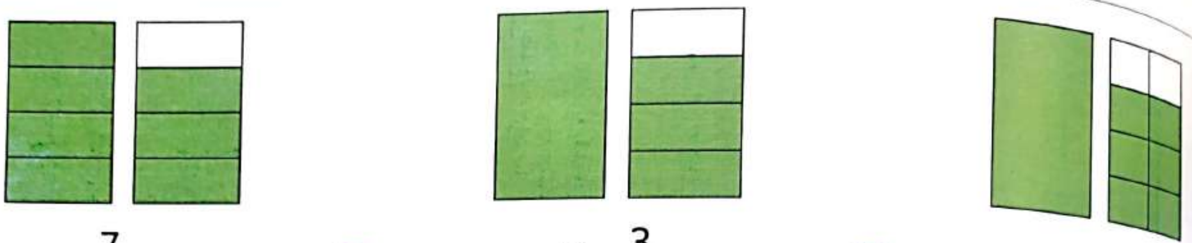
Notes for parents :

- Ask your child to draw a model to compare $\frac{1}{2}$ and $\frac{3}{6}$.

More examples for equivalent fractions



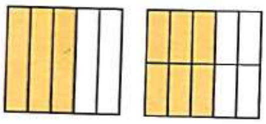
$\frac{10}{6}$ = $1\frac{4}{6}$ = $1\frac{2}{3}$



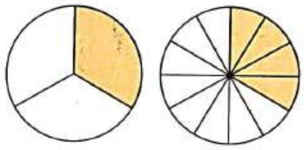
$\frac{7}{4}$ = $1\frac{3}{4}$ = $1\frac{6}{8}$

Example 1

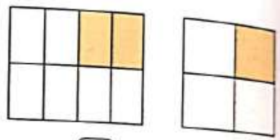
Write the equivalent fractions for each.

a. 

$\frac{\square}{\square} = \frac{\square}{\square}$

b. 

$\frac{\square}{\square} = \frac{\square}{\square}$

c. 

$\frac{\square}{\square} = \frac{\square}{\square}$

Solution

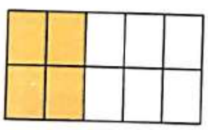
a. $\frac{3}{5} = \frac{6}{10}$

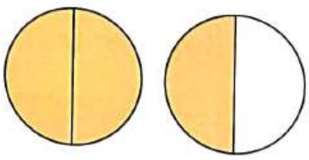
b. $\frac{1}{3} = \frac{4}{12}$

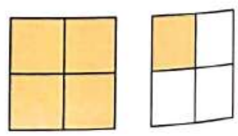
c. $\frac{2}{8} = \frac{1}{4}$

Example 2

Write two equivalent fractions for each of the following models.

a. 

b. 

c. 

Solution

a. $\frac{4}{10}$ and $\frac{2}{5}$ are two equivalent fractions.

b. Improper fraction ($\frac{3}{2}$) and mixed number ($1\frac{1}{2}$) are equivalent.

c. Improper fraction ($\frac{5}{4}$) and mixed number ($1\frac{1}{4}$) are equivalent.

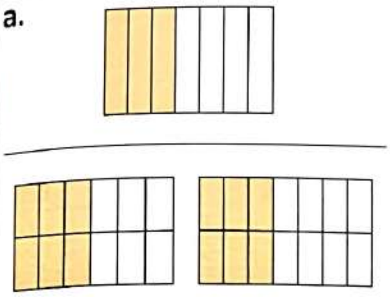
Notes for parents :

- Ask your child to color and fold a rectangular piece of paper to model an equivalent fraction to $\frac{1}{2}$.

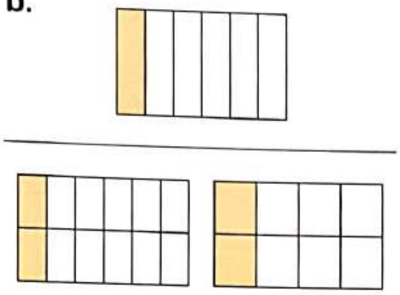
Example 3

Circle the equivalent fraction to the given one.

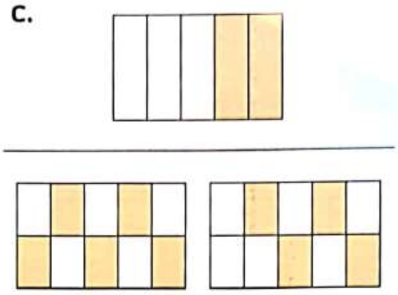
a.



b.

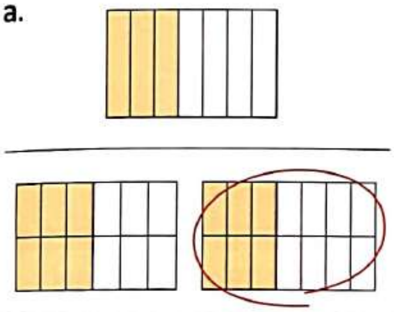


c.

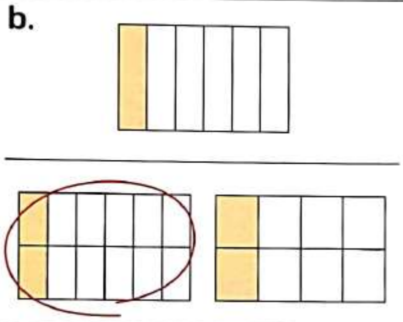


Solution

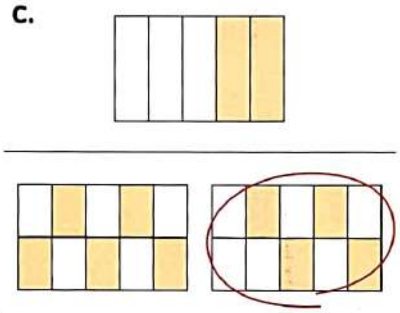
a.



b.



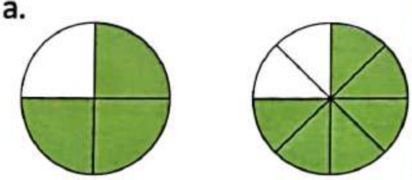
c.



Check your understanding

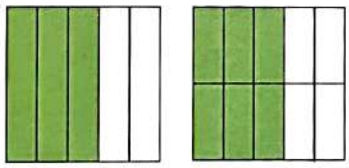
1. Use the models to write the equivalent fractions.

a.



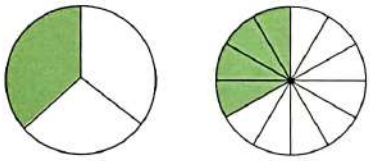
$\frac{3}{4} = \frac{6}{\square}$

b.



$\frac{3}{5} = \frac{\square}{10}$

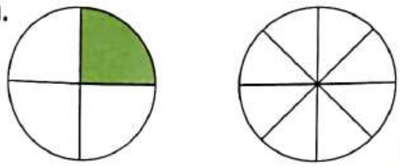
c.



$\frac{1}{3} = \frac{\square}{12}$

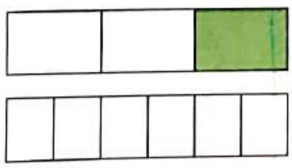
2. Color and write the equivalent fractions.

a.



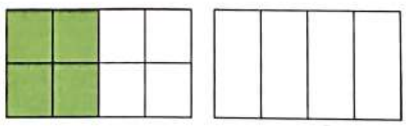
$\frac{1}{4} = \frac{\square}{8}$

b.



$\frac{1}{3} = \frac{\square}{\square}$

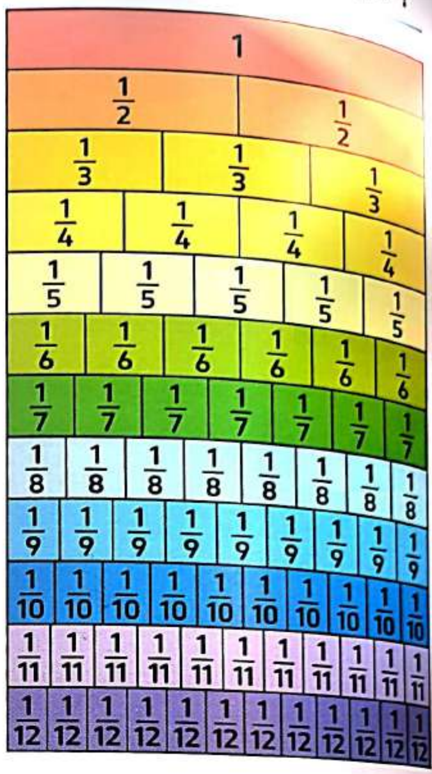
c.



$\frac{4}{8} = \frac{\square}{\square}$

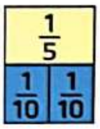
• Ask your child to draw models to show an equivalent fraction to $\frac{3}{4}$.

Learn How can you model the same fraction in different ways?

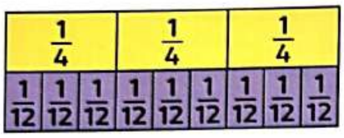


Equivalent fractions name the same part of a whole or part of a set.

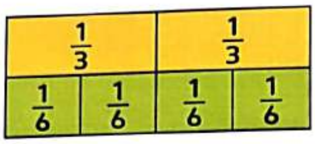
By using the fraction wall, here are some equivalent fractions.



$\frac{1}{5} = \frac{2}{10}$



$\frac{3}{4} = \frac{9}{12}$



$\frac{2}{3} = \frac{4}{6}$

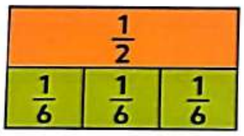
More example :

- $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = ...$
- $\frac{3}{4} = \frac{6}{8} = \frac{9}{12} = ...$

Example 4

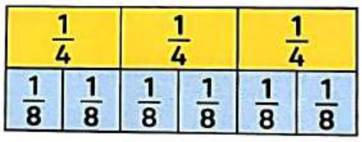
Use the fraction wall. Complete the equivalent fractions.

a.



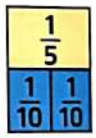
$\frac{1}{2} = \frac{\square}{6}$

b.



$\frac{3}{4} = \frac{\square}{8}$

c.



$\frac{1}{5} = \frac{\square}{10}$

Solution

a. 3

b. 6

c. 2

Example 5

Use the fraction wall. Write the missing numerator.

a. $\frac{1}{4} = \frac{\square}{12}$

b. $\frac{2}{5} = \frac{\square}{10}$

c. $\frac{2}{3} = \frac{\square}{9}$

d. $\frac{6}{8} = \frac{\square}{4}$

Solution

a. 3

b. 4

c. 6

d. 3

Notes for parents :

- Ask your child to use fraction strips to write three equivalent fractions to $\frac{1}{3}$.

Example 6

By using the fraction wall, write one fraction or more equivalent to the following fractions.

a. $\frac{1}{3}$ b. $\frac{1}{4}$ c. $\frac{2}{3}$

Solution

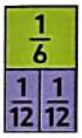
a. $\frac{1}{3} = \frac{2}{6} = \frac{3}{9} = \frac{4}{12}$

b. $\frac{1}{4} = \frac{2}{8} = \frac{3}{12}$

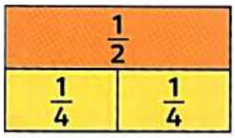
c. $\frac{2}{3} = \frac{4}{6} = \frac{6}{9} = \frac{8}{12}$

Check your understanding

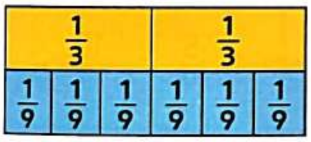
1. Use the fraction wall to complete the following equivalent fractions.

a. 

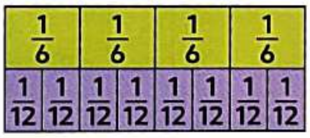
$\frac{1}{6}$ = ______

b. 

$\frac{1}{2}$ = ______

c. 

$\frac{2}{3}$ = ______

d. 

$\frac{4}{6}$ = ______

2. Use the fraction wall to complete.

a. $\frac{3}{4} = \frac{\square}{8} = \frac{9}{\square}$

b. $\frac{2}{6} = \frac{4}{\square} = \frac{\square}{3}$

• Ask your child how he/she show that $\frac{1}{6}$ and $\frac{2}{12}$ are equivalent fractions.

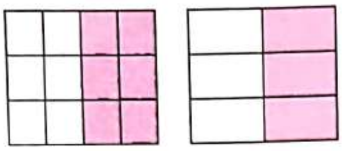
Exercise 12

9-9 Glass $\frac{1}{2}$ Full or $\frac{2}{4}$ Empty ?
9-10 Same Fraction, Different Day

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

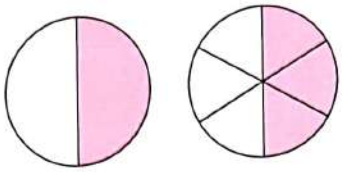
1. Write if the fractions are equivalent or not.

a.



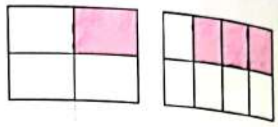
______

b.



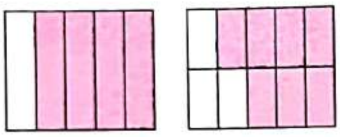
______

c.



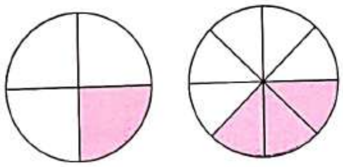
______

d.



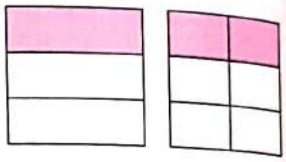
______

e.



______

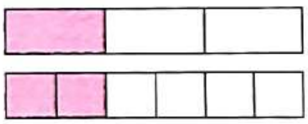
f.



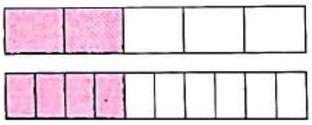
______

2. Write the missing numerator or denominator.

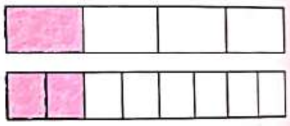
a. $\frac{1}{3} = \frac{_}{6}$



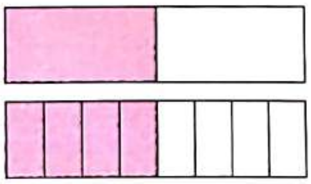
b. $\frac{2}{5} = \frac{_}{10}$



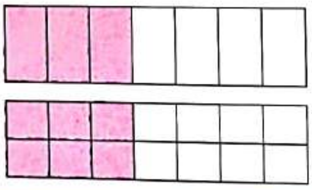
c. $\frac{1}{4} = \frac{_}{8}$



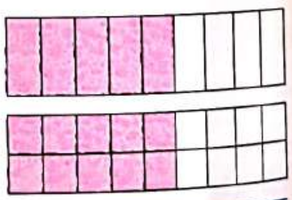
d. $\frac{1}{2} = \frac{4}{_}$



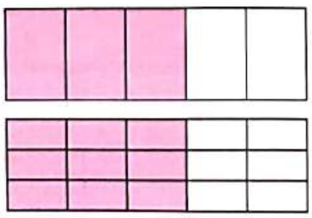
e. $\frac{3}{7} = \frac{6}{_}$



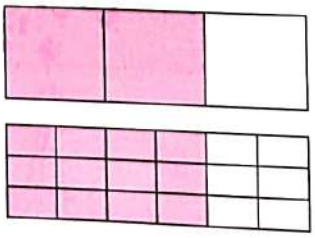
f. $\frac{5}{9} = \frac{10}{_}$



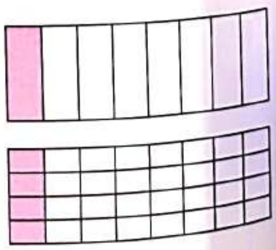
g. $\frac{3}{5} = \frac{9}{_}$



h. $\frac{2}{3} = \frac{_}{18}$

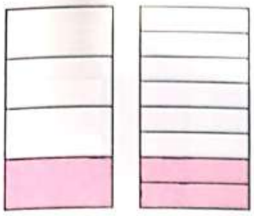


i. $\frac{1}{8} = \frac{_}{32}$



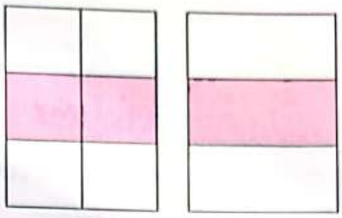
3. Complete to show the equivalent fraction.

a.



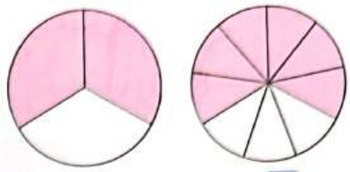
$\frac{1}{4} = \frac{\square}{8}$

b.



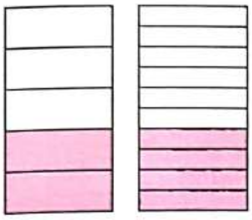
$\frac{2}{6} = \frac{1}{\square}$

c.



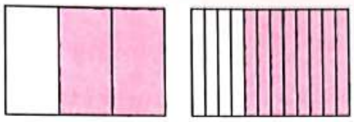
$\frac{2}{3} = \frac{\square}{9}$

d.



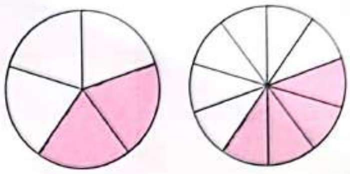
$\frac{2}{5} = \frac{\square}{\square}$

e.



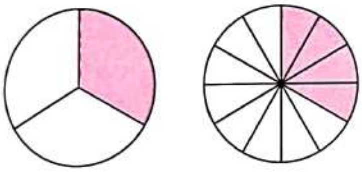
$\frac{2}{3} = \frac{\square}{\square}$

f.



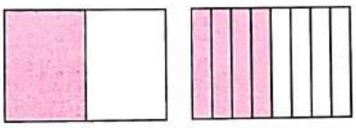
$\frac{2}{5} = \frac{\square}{\square}$

g.



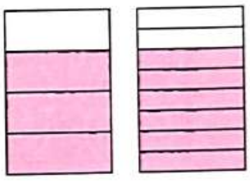
$\frac{\square}{\square} = \frac{\square}{\square}$

h.



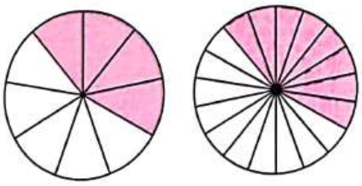
$\frac{\square}{\square} = \frac{\square}{\square}$

i.



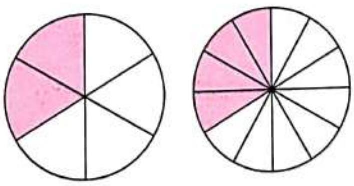
$\frac{\square}{\square} = \frac{\square}{\square}$

j.



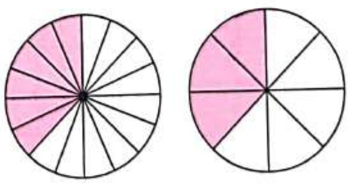
$\frac{\square}{\square} = \frac{\square}{\square}$

k.



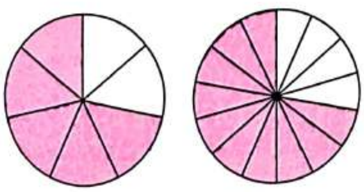
$\frac{\square}{\square} = \frac{\square}{\square}$

l.



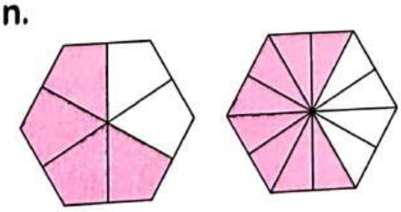
$\frac{\square}{\square} = \frac{\square}{\square}$

m.



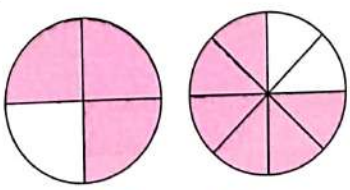
$\frac{\square}{\square} = \frac{\square}{\square}$

n.



$\frac{\square}{\square} = \frac{\square}{\square}$

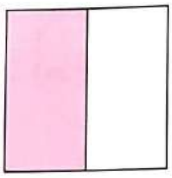
o.



$\frac{\square}{\square} = \frac{\square}{\square}$

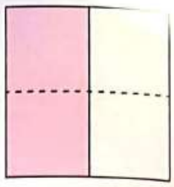
4. Write the fraction which represents the colored part. Follow the order. Write the equivalent fraction.

a.



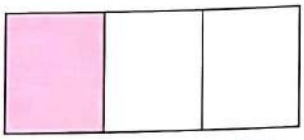
The fraction = $\frac{\square}{\square}$

→ Divide the square into two equal rows →



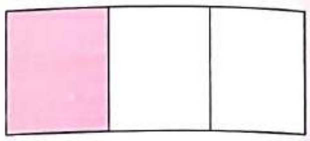
Equivalent fraction = $\frac{\square}{\square}$

b.



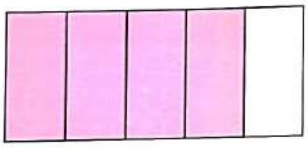
The fraction = $\frac{\square}{\square}$

→ Divide the rectrangle into two equal rows →



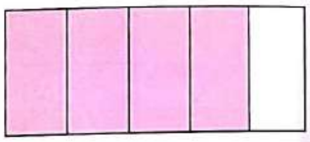
Equivalent fraction = $\frac{\square}{\square}$

c.



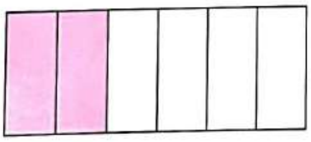
The fraction = $\frac{\square}{\square}$

→ Divide the rectrangle into two equal rows →



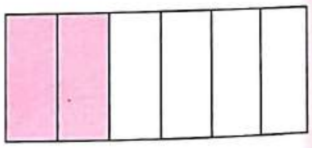
Equivalent fraction = $\frac{\square}{\square}$

d.



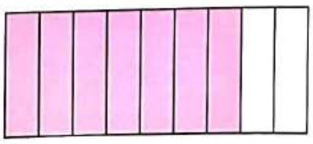
The fraction = $\frac{\square}{\square}$

→ Divide the rectrangle into two equal rows →



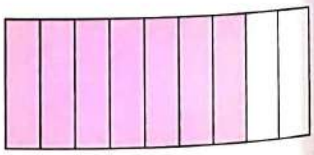
Equivalent fraction = $\frac{\square}{\square}$

e.



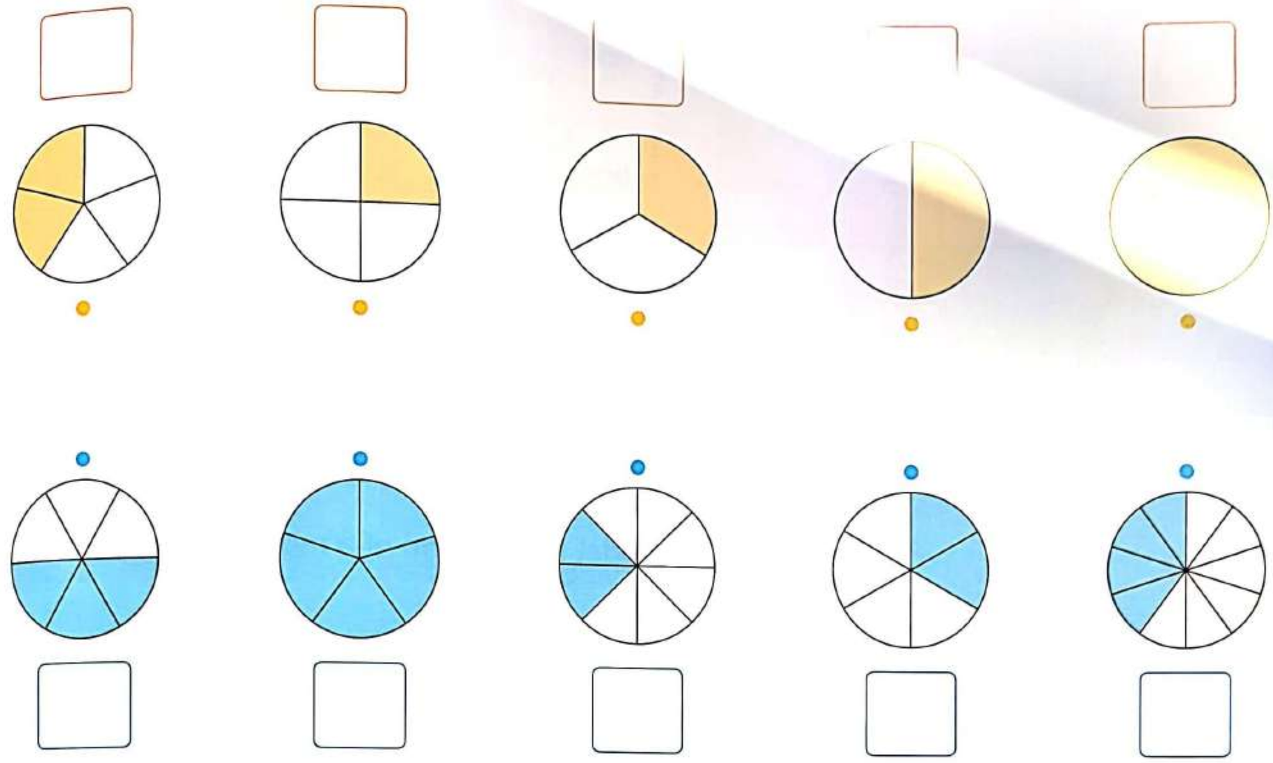
The fraction = $\frac{\square}{\square}$

→ Divide the rectrangle into two equal rows →



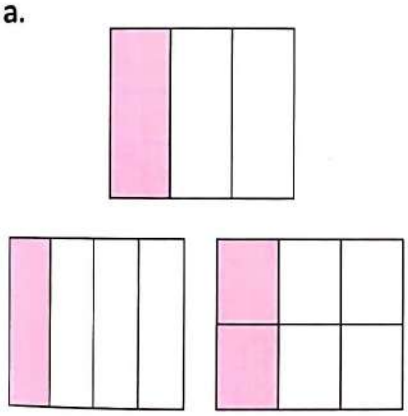
Equivalent fraction = $\frac{\square}{\square}$

5. Write each fraction which represents the colored part, then match the yellow fraction with the equivalent blue fraction.

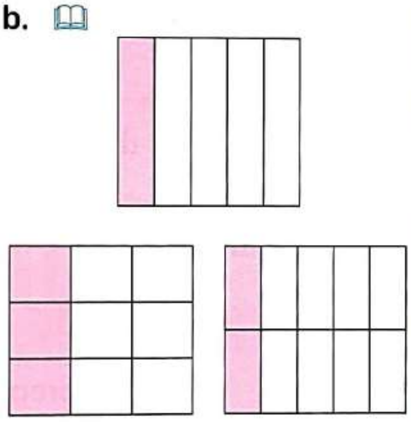


6. Circle the equivalent fraction to the given one.

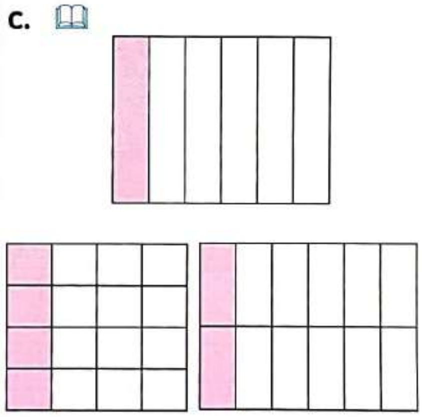
a.



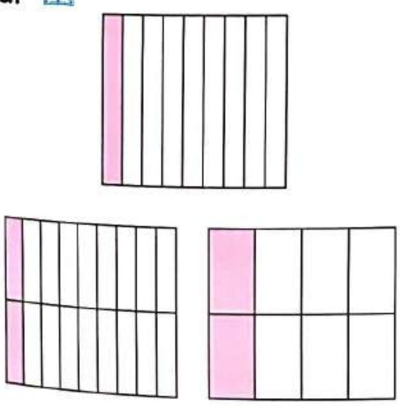
b.



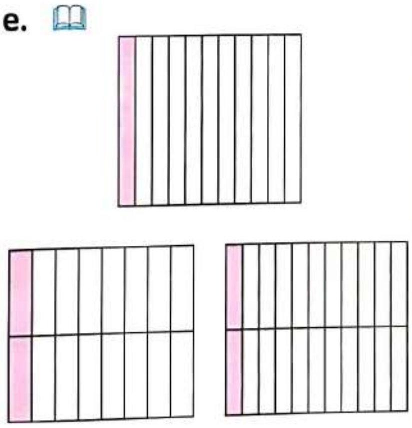
c.



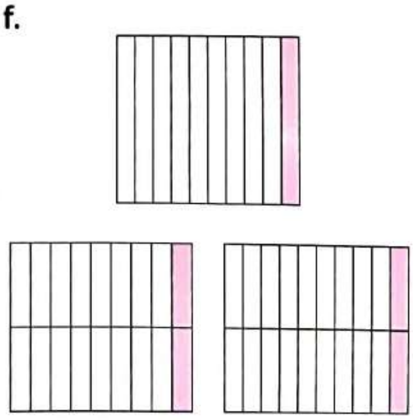
d.



e.



f.



7. Draw two models to find an equivalent fraction.

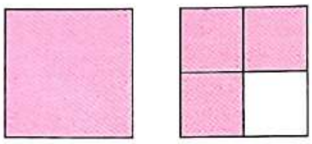
a. $\frac{1}{2}$

b. $\frac{3}{5}$

c. $\frac{2}{7}$

8. Write the fraction which represents the model in the form of a mixed number and an improper fraction.

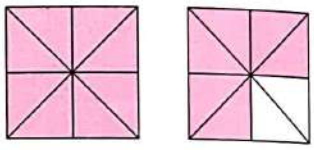
a.



Improper fraction ________

Mixed number ________

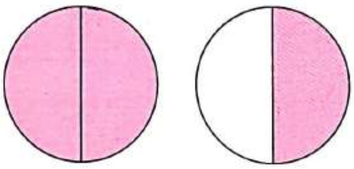
b.



Improper fraction ________

Mixed number ________

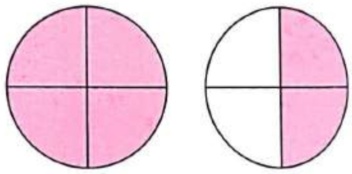
c.



Improper fraction ________

Mixed number ________

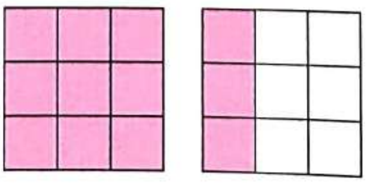
d.



Improper fraction ________

Mixed number ________

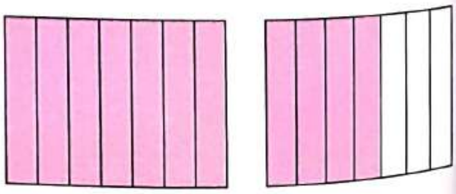
e.



Improper fraction ________

Mixed number ________

f.



Improper fraction ________

Mixed number ________

9. Look at the fraction wall.

1. Write if each pair of fractions are equivalent or not.

a. $\frac{2}{5}$ and $\frac{4}{10}$ ________

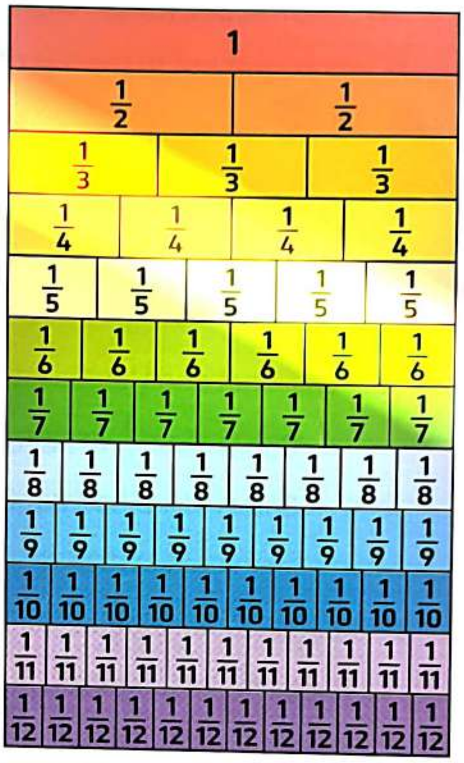
b. $\frac{5}{8}$ and $\frac{2}{3}$ ________

c. $\frac{4}{8}$ and $\frac{3}{6}$ ________

d. $\frac{5}{6}$ and $\frac{7}{8}$ ________

e. $\frac{1}{2}$ and $\frac{5}{10}$ ________

f. $\frac{2}{3}$ and $\frac{5}{6}$ ________



2. Record two fractions that are equivalent to $\frac{1}{4}$.

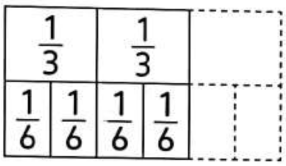
________ , ________

3. Record two fractions that are equivalent to $\frac{2}{3}$.

________ , ________

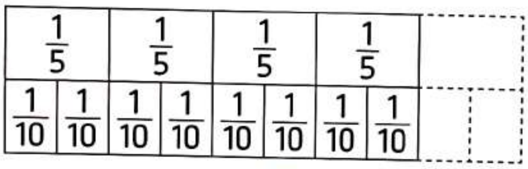
10. Use the fraction wall. Complete the equivalent fraction.

a.



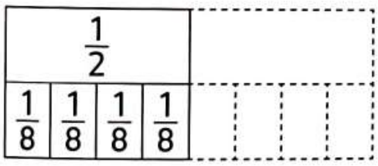
$\frac{2}{3} = \frac{\square}{6}$

b.



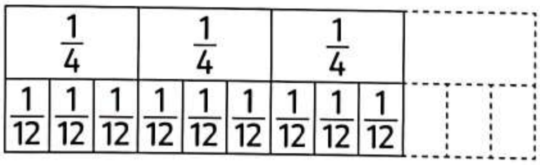
$\frac{4}{5} = \frac{\square}{10}$

c.



$\frac{1}{2} = \frac{\square}{8}$

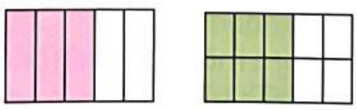
d.



$\frac{3}{4} = \frac{\square}{12}$

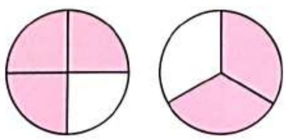
11. Put (✓) for each correct statement and (✗) for the incorrect one.

a. The fraction of the red parts is equivalent to the fraction of green parts.



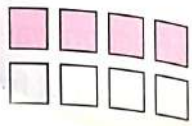
[ ]

b. The two fractions are equivalent.

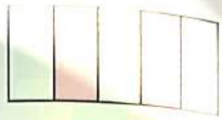


[ ]

c. The fraction for the shaded parts is equivalent to the fraction for the unshaded parts.



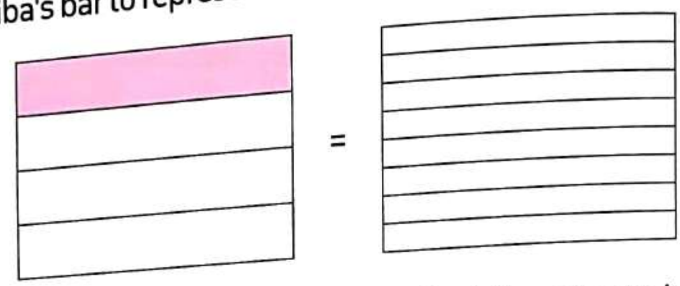
d. The fraction for the shaded parts is equivalent to the fraction for the unshaded parts.



12. a. Genet and Habiba have the same kind of candy bar.

Genet eats $\frac{1}{4}$ of her candy bar. Habiba eats the same amount.

Color in Habiba's bar to represent the amount she ate.

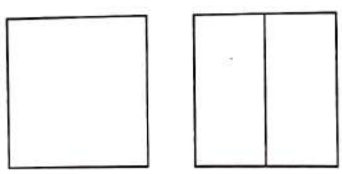


b. Write the fraction showing how much Habiba's bar she ate in the previous item

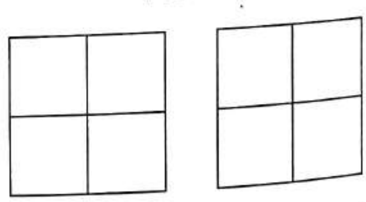
Genet		**Habiba**
$\frac{1}{4}$	=	___

13. a. Mona ate $1\frac{1}{2}$ brownies. Her brother Malek ate $\frac{6}{4}$. Color in each person's brownies show the amount that they ate.

Mona



Malek



b. Who ate more brownies, Mona or Malek ? Explain how you know that.

14. Ola ate $1\frac{1}{4}$ of pizza while Basma ate $\frac{5}{4}$ of a pizza of the same size.

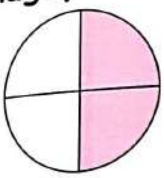
Draw and color a model to each one of them representing what they ate.

Then show who ate more pizza Ola or Basma ?

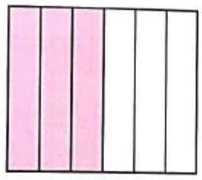
Challenge

15. Magdy and Kareem enter a pizza eating contest. The person who eats the most pizza wins. Magdy eats pieces of the circle pizza and Kareem eats pieces of the rectangle pizza. They each manage to eat $\frac{1}{2}$ of their pizza. However, Kareem is given the prize. Why?

Magdy's Pizza



Kareem's Pizza



16. Samar has a recipe for healthy snack bars that she received from her friend. The recipe uses measuring cups and teaspoons. Her friend sent a $\frac{1}{4}$ cup and $\frac{1}{4}$ teaspoon, so Samar has to rewrite the recipe using equivalent fractions.

(Hint: Think about an equivalent fraction for $\frac{1}{2}$ using fourths.)

Healthy Snack Bars

Ingredients:

- $\frac{1}{2}$ cup rolled oats.
- 2 cups crispy rice cereal.
- $\frac{1}{4}$ cup honey.
- $1\frac{1}{2}$ cups peanut butter.
- $\frac{1}{2}$ teaspoon of vanilla.
- 1 cup chocolate chips.

Rewrite:

a. ________ cup rolled oats.

b. ________ cup peanut butter.

c. ________ cup crispy rice cereal.

d. ________ teaspoon of vanilla.

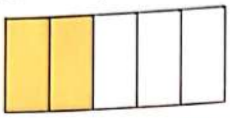
e. ________ cup honey.

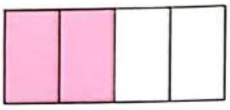
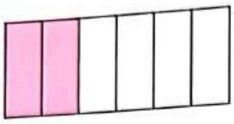
f. ________ cup chocolate chips.

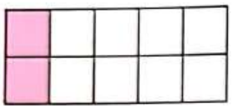
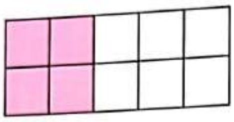
Multiple Choice Questions

Choose the correct answer:

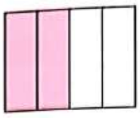
1. Which fraction is equivalent to this ?

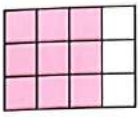


A.  B. 

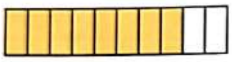
C.  D. 

2. Which of the following is equivalent to the given fraction ?

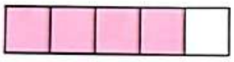
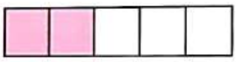
A.  B.

C.  D.

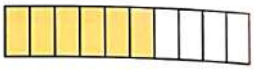
3. Which model is equivalent to this ?

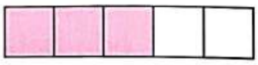
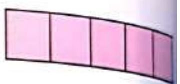


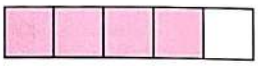
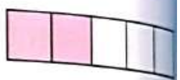
A. B.

C.  D. 

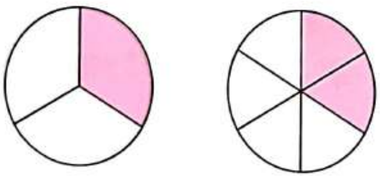
4. Which model is equivalent to this ?



A.  B. 

C.  D. 

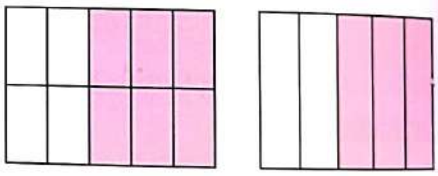
5. What is the missing numerator ?



$$\frac{1}{3} = \frac{\square}{6}$$

A. 1 B. 2 C. 3 D. 6

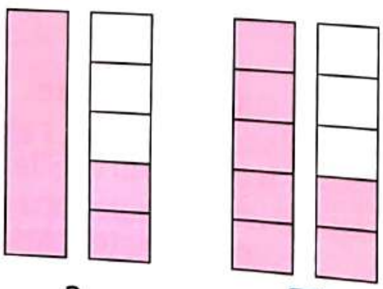
6. What is the missing denominator ?



$$\frac{6}{10} = \frac{3}{\square}$$

A. 3 B. 5 C. 6 D. 10

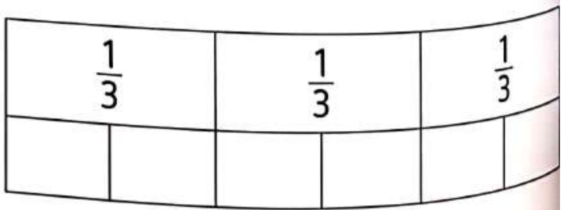
7. What is the missing numerator ?



$$1\frac{2}{5} = \frac{\square}{5}$$

A. 2 B. 5 C. 7 D. 10

8. What is the equivalent fraction to $\frac{1}{3}$?



A. $\frac{2}{6}$ B. $\frac{4}{6}$

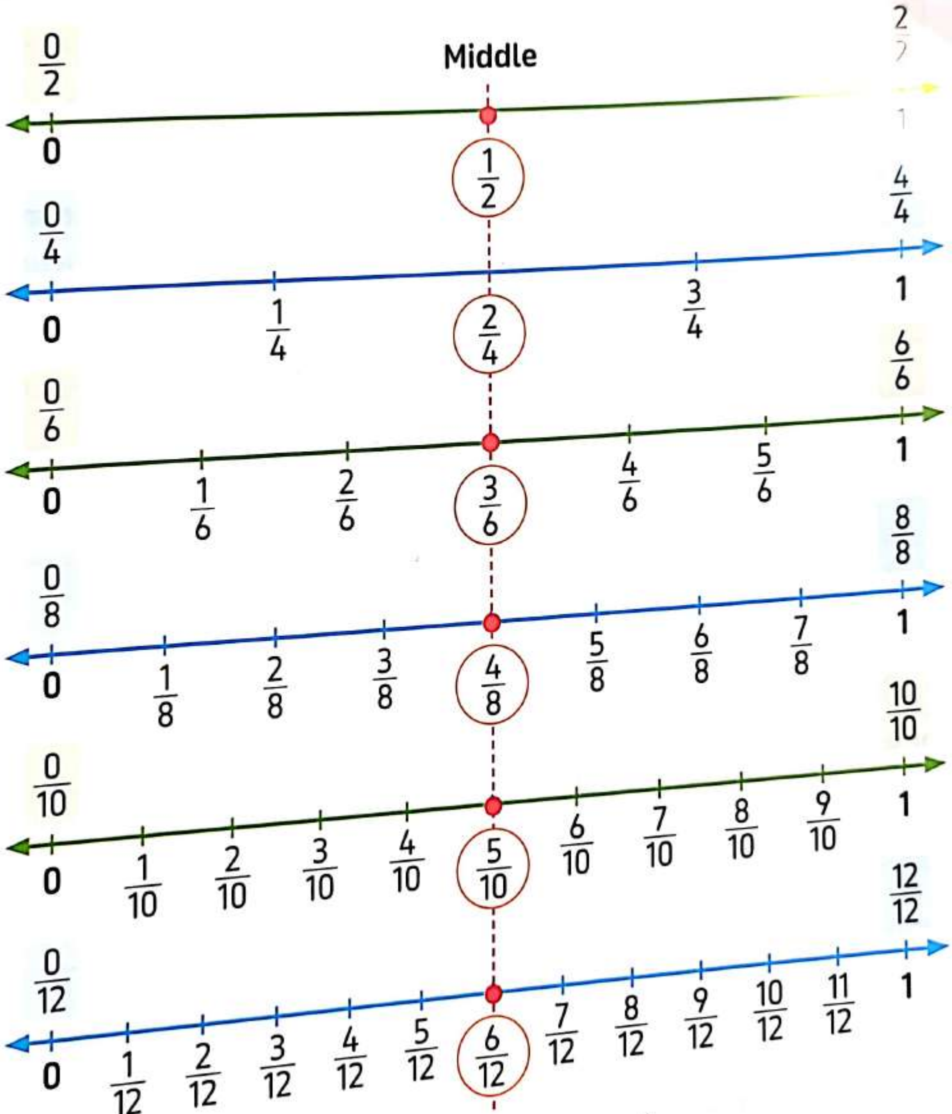
C. $\frac{2}{8}$ D. $\frac{3}{9}$

Lesson 6

9-11 Benchmark Fractions
9-12 Half or Whole ?

Learn Benchmark fractions

- Benchmark fractions are common fractions that you can use to judge and compare other fractions.
- 0 , $\frac{1}{2}$ and 1 is benchmark fractions, the following number lines show the equivalent fractions to these benchmark fractions.



$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10} = \frac{6}{12} = ...$$

Note that :
In each fraction of $\frac{1}{2}$, $\frac{2}{4}$, $\frac{3}{6}$, $\frac{4}{8}$, $\frac{5}{10}$ and $\frac{6}{12}$,... the numerator is equal to half the denominator.

Notes for parents :

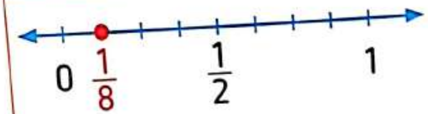
- Ask your child to draw models to check that $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = ...$

Example 1

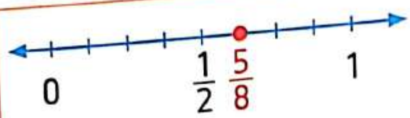
Find benchmarks for $\frac{1}{8}$, $\frac{5}{8}$ and $\frac{7}{8}$ Decide if the fraction is closer to 0 , $\frac{1}{2}$ or 1

Locate each fraction on a number line.

Solution



So, $\frac{1}{8}$ is closer to 0



So, $\frac{5}{8}$ is closer to $\frac{1}{2}$.

So, $\frac{7}{8}$ is closer to 1

Remarks

If the numerator is much less than half the denominator, the fraction is closer to 0	If the numerator is about half the denominator, the fraction is closer to $\frac{1}{2}$	If the numerator is much more than half the denominator, the fraction is closer to 1

For example :

- For $\frac{1}{8}$, $\frac{5}{8}$ and $\frac{7}{8}$, half of the denominator is 4
- For $\frac{1}{8}$, 1 is much less than 4. So, $\frac{1}{8}$ is closer to 0
- For $\frac{5}{8}$, 5 is about 4 . So, $\frac{5}{8}$ is closer to $\frac{1}{2}$
- For $\frac{7}{8}$, 7 is much more than 4 . So, $\frac{7}{8}$ is closer to 1

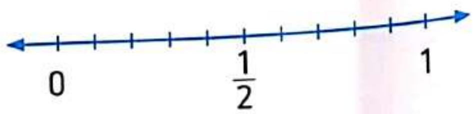
Check your understanding

1. Circle all fractions that are equivalent to $\frac{1}{2}$

$\frac{2}{5}$ $\frac{3}{6}$ $\frac{7}{12}$ $\frac{5}{10}$ $\frac{10}{20}$ $\frac{10}{18}$ $\frac{4}{8}$ $\frac{8}{14}$ $\frac{5}{6}$ $\frac{8}{16}$

2. Write whether the fraction is closer to 0 , $\frac{1}{2}$ or 1.

Use the number line.



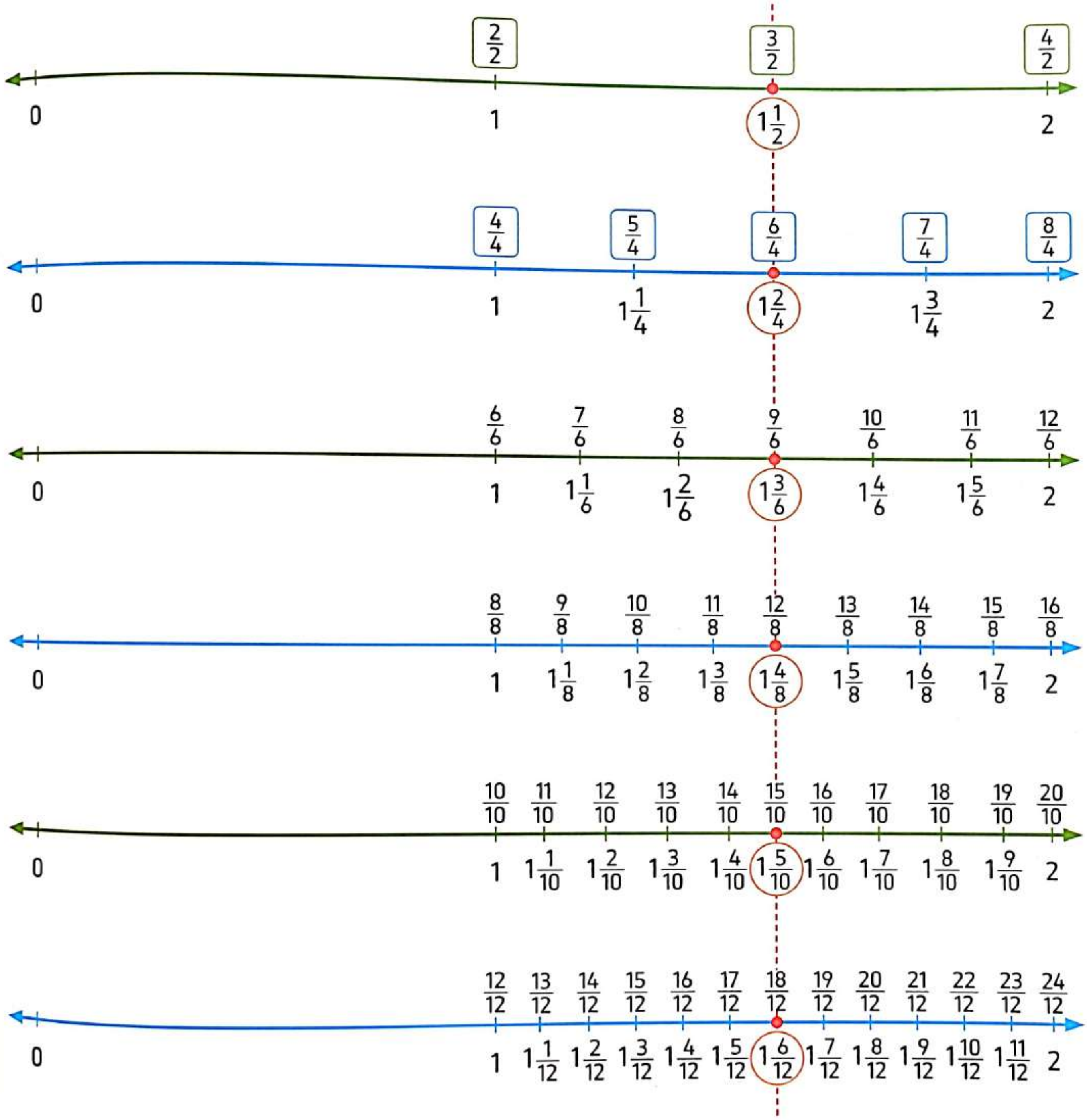
a. $\frac{8}{10}$ | **b.** $\frac{6}{10}$ | **c.** $\frac{2}{10}$ | **d.** $\frac{9}{10}$ | **e.** $\frac{4}{10}$

Notes for parents :

- Ask your child how he/she know that $\frac{7}{10}$ is closer to $\frac{1}{2}$ than 1

More benchmark fractions

- $1\frac{1}{2}$ and 2 are also benchmark fractions you can use to compare fractions.



$$1\frac{1}{2} = 1\frac{2}{4} = 1\frac{3}{6} = 1\frac{4}{8} = 1\frac{5}{10} = 1\frac{6}{12} = \dots$$

$$\frac{3}{2} = \frac{6}{4} = \frac{9}{6} = \frac{12}{8} = \frac{15}{10} = \frac{18}{12} = \dots$$

• Ask your child to write an equivalent fraction to the benchmark fraction $1\frac{1}{2}$

Learn Comparing fractions using benchmark fractions

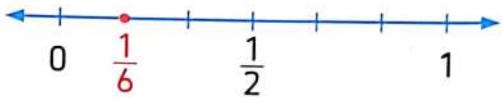
You can decide if a fraction is greater or less than a benchmark fraction (one half or one whole) and use this to compare two fractions indirectly.

Example 3

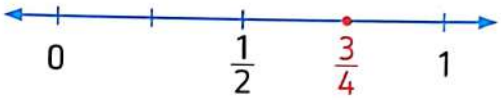
Compare $\frac{3}{4}$ and $\frac{1}{6}$ using benchmark fractions.

Solution

$\frac{1}{6} < \frac{1}{2}$ because 1 is less than half of 6.



$\frac{3}{4} > \frac{1}{2}$ because 3 is greater than half of 4.



So, $\frac{3}{4}$ > $\frac{1}{6}$

Example 4

Use benchmark fractions to compare. Write "< , > or =".

a. $\frac{5}{10}$ ☐ $\frac{5}{8}$	b. $\frac{3}{6}$ ☐ $\frac{4}{12}$	c. $\frac{1}{5}$ ☐ 0
d. $\frac{4}{10}$ ☐ $\frac{5}{6}$	e. $\frac{3}{8}$ ☐ $\frac{3}{4}$	f. $\frac{11}{12}$ ☐ $\frac{4}{9}$
g. $\frac{7}{6}$ ☐ $\frac{5}{7}$	h. $\frac{6}{12}$ ☐ $\frac{4}{8}$	i. 1 ☐ $\frac{8}{5}$

Solution

a. $\frac{5}{10} = \frac{1}{2}$

$\frac{5}{8} > \frac{1}{2}$ because 5 is greater than half of 8

So, $\frac{5}{10}$ < $\frac{5}{8}$

Another Solution :

$\frac{5}{10}$ < $\frac{5}{8}$ because they have the same numerator and 10 > 8

• Remind your child how he/she compare two fractions having the same numerator. Let him/her compare only the denominators.

b. $\frac{3}{6} = \frac{1}{2}$

$\frac{4}{12} < \frac{1}{2}$ because 4 is less than half of 12

So, $\frac{3}{6}$ > $\frac{4}{12}$

c. $\frac{1}{5}$ > 0

d. $\frac{4}{10} < \frac{1}{2}$ because 4 is less than half of 10

$\frac{5}{6} > \frac{1}{2}$ because 5 is greater than half of 6

So, $\frac{4}{10}$ < $\frac{5}{6}$

e. $\frac{3}{8} < \frac{1}{2}$ because 3 is less than half of 8

$\frac{3}{4} > \frac{1}{2}$ because 3 is greater than half of 4

So, $\frac{3}{8}$ < $\frac{3}{4}$

Another Solution :

$\frac{3}{8}$ < $\frac{3}{4}$ because they have the same numerator and 8 > 4

f. $\frac{11}{12} > \frac{1}{2}$ and $\frac{4}{9} < \frac{1}{2}$

So, $\frac{11}{12}$ > $\frac{4}{9}$

g. $\frac{7}{6} > 1$ because it is an improper fraction.

$\frac{5}{7} < 1$ because it is a proper fraction.

So, $\frac{7}{6}$ > $\frac{5}{7}$

h. $\frac{6}{12} = \frac{1}{2}$ and $\frac{4}{8} = \frac{1}{2}$

So, $\frac{6}{12}$ = $\frac{4}{8}$

i. 1 < $\frac{8}{5}$

because $\frac{8}{5}$ is an improper fraction.

Remarks

1. Any **proper** fraction is **smaller than 1**, for example : $\frac{2}{3}$ < 1
2. Any **improper** fraction is **greater than or equal to 1**, for example : $\frac{7}{4}$ > 1
3. Any **improper** fraction is **greater than any proper fraction**, for example : $\frac{11}{5}$ > $\frac{5}{6}$

Notes for parents :

• Remind your child that any improper fraction is greater than any proper fraction, because any improper fraction is greater than or equal to 1 but any proper fraction is smaller than 1.

Example 5

Put the fractions $\frac{7}{8}$, $\frac{5}{10}$, $\frac{2}{6}$ in an ascending order.

Solution

$\frac{7}{8} > \frac{1}{2}$ because 7 is greater than half of 8.

$\frac{5}{10} = \frac{1}{2}$

$\frac{2}{6} < \frac{1}{2}$ because 2 is less than half of 6.

So, the order is : $\frac{2}{6}$, $\frac{5}{10}$, $\frac{7}{8}$

Example 6

Bassem and Andy were eating same-sized sandwich. Bassem's sandwich was cut into 6 equal parts and Andy's sandwich was cut into 4 equal parts. Each of them ate 3 parts of his sandwich.

Who ate the most ?

Solution

• Bassem ate = $\frac{3}{6}$

• Andy ate = $\frac{3}{4}$

• $\frac{3}{6} = \frac{1}{2}$ and $\frac{3}{4} > \frac{1}{2}$

So, $\frac{3}{4}$ > $\frac{3}{6}$

So, Andy ate the most.

Check your understanding

1. Use benchmark fractions to compare. Write "<, > or =".

a. $\frac{7}{18}$ ☐ $\frac{3}{4}$ b. $\frac{10}{20}$ ☐ $\frac{9}{16}$ c. $\frac{7}{12}$ ☐ $\frac{10}{10}$

d. $\frac{3}{7}$ ☐ $\frac{6}{5}$ e. 0 ☐ $\frac{2}{3}$ f. $\frac{10}{7}$ ☐ 1

2. Put the fractions $\frac{4}{6}$, $\frac{5}{12}$, $\frac{4}{8}$ in a descending order.

3. Mazen jogged for $\frac{2}{4}$ hour. He swam for $\frac{5}{6}$ hour. Which activity took longer ? Explain.

*Help your child how he/she can use benchmark fractions to compare $\frac{7}{18}$ and $\frac{3}{4}$

Exercise 13

9-11 Benchmark Fractions
9-12 Half or Whole ?

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING — From the school book

First : Problems on benchmark fractions

1. Write whether the fraction is closest to 0 , $\frac{1}{2}$, or 1.

(number line: 0, $\frac{1}{2}$, 1)

a. Use the number line.

$\frac{3}{8}$ .... $\frac{7}{8}$ .... $\frac{1}{8}$ .... $\frac{5}{8}$ ....

(number line: 0, $\frac{1}{2}$, 1)

b. Use the number line.

$\frac{10}{12}$ .... b. $\frac{5}{12}$ .... c. $\frac{7}{12}$ .... d. $\frac{2}{12}$ ....

2. Locate each fraction on the number line, then decide whether the fraction is closer to zero, half or one, then check the suitable box.

Fraction	Number line	0	$\frac{1}{2}$	1
$\frac{2}{4}$	0 —— 1			
$\frac{1}{6}$	0 —— 1			
$\frac{7}{8}$	0 —— 1			
$\frac{4}{10}$	0 —— 1			

3. Draw a line between each fraction and its equivalent benchmark fraction.
(Some benchmark fractions can be connected to more than one fraction)

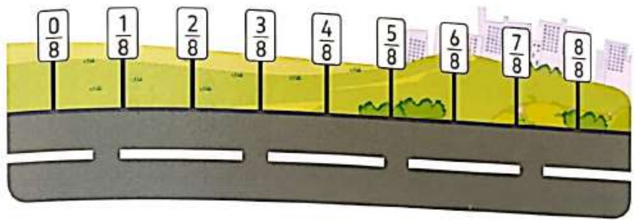
0 $\frac{1}{2}$ 1 $1\frac{1}{2}$ 2

$\frac{2}{4}$ $\frac{0}{3}$ $\frac{6}{4}$ $\frac{8}{4}$ $\frac{9}{18}$ $\frac{7}{7}$ $\frac{15}{10}$ $\frac{6}{3}$ $\frac{14}{7}$

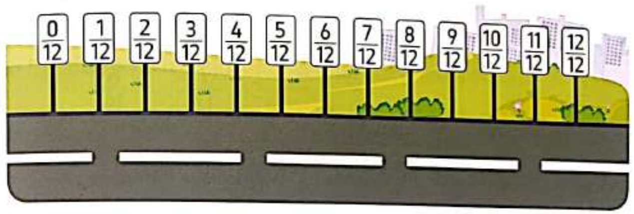
4. Sherif was in charge of placing benches along a 1 kilometer walking path in Cairo. He was supposed to put the benches at the beginning, middle, and end of the path.

a. **At what kilometer marker posts should Sherif put benches ? Draw benches in the appropriate spots along the path.**

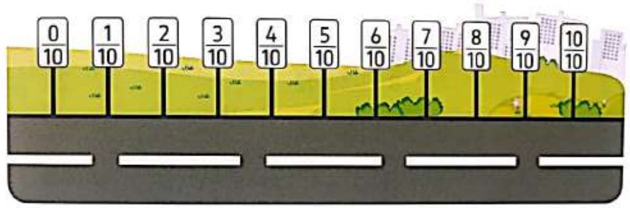
(1)



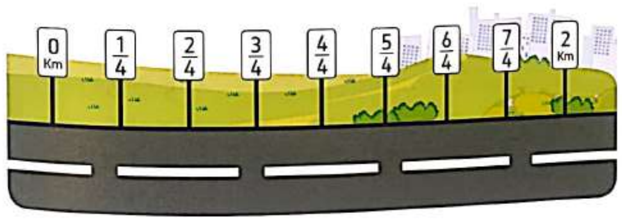
(2)



(3)



b. For Sherif's next job, the path is 2-kilometers long. He must place a bench every $\frac{1}{2}$ kilometer from the beginning to end. Where should he place them ?
Draw benches in the appropriate spots along the path.



Second : Problems on comparing fractions using benchmarks

1. Use benchmarks to compare. Complete the answer of each problem.

a. Compare $\frac{3}{4}$ and $\frac{2}{6}$

Because $\frac{3}{4}$ ☐ $\frac{1}{2}$, and $\frac{1}{2}$ ☐ $\frac{2}{6}$

So, $\frac{3}{4}$ ☐ $\frac{2}{6}$

b. Compare $\frac{6}{8}$ and $\frac{11}{9}$

Because $\frac{6}{8}$ ☐ 1, and 1 ☐ $\frac{11}{9}$

So, $\frac{6}{8}$ ☐ $\frac{11}{9}$

c. Compare $\frac{9}{7}$ and $\frac{5}{6}$

Because $\frac{9}{7}$ ☐ 1, and 1 ☐ $\frac{5}{6}$

So, $\frac{9}{7}$ ☐ $\frac{5}{6}$

d. Compare $\frac{7}{12}$ and $\frac{6}{14}$

Because $\frac{7}{12}$ ☐ $\frac{1}{2}$, and $\frac{1}{2}$ ☐ $\frac{6}{14}$

So, $\frac{7}{12}$ ☐ $\frac{6}{14}$

2. Compare. Write "<, > or =".

a. $\frac{4}{7}$ ☐ $\frac{1}{2}$ b. $\frac{7}{8}$ ☐ $\frac{1}{2}$ c. $\frac{8}{8}$ ☐ 1

d. $\frac{5}{10}$ ☐ $\frac{2}{6}$ e. $\frac{4}{8}$ ☐ $\frac{6}{12}$ f. $\frac{10}{20}$ ☐ $\frac{11}{18}$

g. $\frac{3}{4}$ ☐ $\frac{3}{10}$ h. $\frac{5}{6}$ ☐ $\frac{5}{12}$ i. $\frac{5}{6}$ ☐ $\frac{3}{10}$

j. $\frac{11}{18}$ ☐ $\frac{9}{5}$ k. $\frac{6}{14}$ ☐ $\frac{7}{10}$ l. $\frac{9}{8}$ ☐ $\frac{8}{9}$

3. Put (✓) to the correct statement and (✗) to the incorrect one.

a. $\frac{1}{2} = \frac{6}{12}$ [ ]

c. $\frac{6}{12} > \frac{5}{7}$ [ ]

e. $\frac{3}{6} < \frac{3}{8}$ [ ]

g. $\frac{5}{6} = \frac{6}{5}$ [ ]

i. $\frac{3}{4} > \frac{1}{8}$ [ ]

k. $\frac{9}{9} > \frac{7}{7}$ [ ]

b. $\frac{5}{8} < \frac{1}{2}$ [ ]

d. $\frac{10}{20} > \frac{1}{2}$ [ ]

f. $\frac{4}{5} > \frac{8}{16}$ [ ]

h. $\frac{9}{5} < \frac{11}{15}$ [ ]

j. $\frac{7}{18} < \frac{5}{9}$ [ ]

l. $\frac{5}{4} > 1$ [ ]

4. Use the benchmark fractions 0, $\frac{1}{2}$ and 1 to order each group of the fractions.

a. $\frac{3}{6}$, $\frac{6}{8}$, $\frac{2}{10}$ [From the least to the greatest]

b. $\frac{5}{10}$, $\frac{2}{6}$, $\frac{7}{12}$ [From the least to the greatest]

c. $\frac{1}{4}$, $\frac{9}{9}$, $\frac{5}{6}$ [From the greatest to the least]

d. $\frac{10}{11}$, $\frac{5}{5}$, $\frac{10}{20}$ [From the greatest to the least]

5. a. Circle the fraction which is closer to $\frac{1}{2}$, be not greater than it.

$\frac{8}{12}$, $\frac{2}{5}$

b. Circle the fraction which is closer to $\frac{1}{2}$, but not equal to $\frac{1}{2}$

$\frac{2}{4}$, $\frac{7}{16}$

Story Problems

1. Use a Benchmark For her birthday party, Menna made two cakes because she had so many friends coming. The two cakes were the same size. Her mom cut one cake into 10 pieces and the other into 6 pieces. $\frac{5}{10}$ of one cake was eaten and $\frac{5}{6}$ of the other cake was eaten. Which cake had more eaten ? Use benchmark fractions to solve the problem.

2. Two buckets are the same size. Bucket 1 is $\frac{5}{9}$ full of water. Bucket 2 is $\frac{5}{10}$ full of water. Which bucket has less water ?

3. Rashad and Malek each got a candy bar that was the same size. Rashed ate $\frac{4}{6}$ of his candy bar and Malek ate $\frac{4}{8}$ of his.

Who ate more than $\frac{1}{2}$? How do you know ?

4. Mariam and Jana each had identical sandwiches. Mariam cut her sandwich into 12 pieces and ate 4 of them. Jana cut hers into 6 pieces and ate 3. Who ate more ? How do you know ?

Sandwich wrap

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5. At basketball practice, Hatem made 14 of his 18 shots. His best friend, Amir made 8 of his 16 shots. Who made a larger fraction of the shots taken ?

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6. Mazen and Ezz each had a candy bar. They each ate $\frac{1}{2}$ of the bar, but Mazen ate more candy than Ezz. How is this possible ? Use a model to explain to explain your thinking.

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7. Amir ate $\frac{3}{9}$ of a candy bar. Sarah ate $\frac{5}{8}$ of a candy bar of the same type and size. Who ate more than half ?

Challenge

8. Which makes this true ? Use benchmark fraction.

$\frac{3}{4} > \frac{\square}{10}$

a. 4 b. 8 c. 9 d. 10

Multiple Choice Questions

Choose the correct answer.

1. Which of the following fractions is equal to $\frac{1}{2}$?
   - A. $\frac{4}{7}$
   - B. $\frac{5}{10}$
   - C. $\frac{6}{3}$
   - D. $\frac{8}{8}$

2. Which of the following fractions is greater to $\frac{1}{2}$?
   - A. $\frac{2}{4}$
   - B. $\frac{2}{6}$
   - C. $\frac{5}{8}$
   - D. $\frac{10}{20}$

3. Which of the following fractions is less than $\frac{1}{2}$?
   - A. $\frac{3}{3}$
   - B. $\frac{5}{6}$
   - C. $\frac{3}{8}$
   - D. $\frac{6}{12}$

4. Which of the following fractions is closest to $\frac{1}{2}$?
   - A. $\frac{11}{5}$
   - B. $\frac{3}{8}$
   - C. $\frac{9}{10}$
   - D. $\frac{1}{5}$

5. Which of the following fractions is closest to 1 ?
   - A. $\frac{1}{7}$
   - B. $\frac{2}{11}$
   - C. $\frac{4}{10}$
   - D. $\frac{10}{11}$

6. Which of the following fractions is greater than 1 ?
   - A. $\frac{4}{5}$
   - B. $\frac{5}{8}$
   - C. $\frac{7}{5}$
   - D. $\frac{9}{10}$

7. Which of the following fractions is the greatest ?
   - A. $\frac{10}{12}$
   - B. $\frac{8}{7}$
   - C. $\frac{9}{9}$
   - D. $\frac{5}{6}$

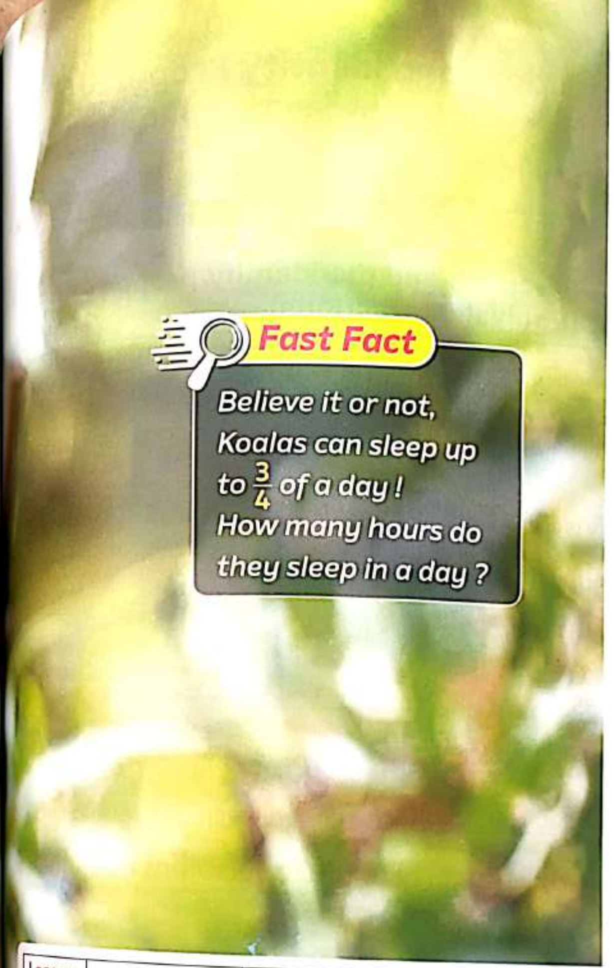
8. Which of the following fractions is the smallest ?
   - A. $\frac{3}{2}$
   - B. $\frac{1}{2}$
   - C. $\frac{3}{8}$
   - D. $\frac{8}{8}$

9. Which of the following shows the fractions ordered from the least to the greatest ?
   - A. $\frac{2}{10}, \frac{5}{10}, \frac{9}{10}$
   - B. $\frac{5}{10}, \frac{2}{10}, \frac{9}{10}$
   - C. $\frac{2}{10}, \frac{9}{10}, \frac{5}{10}$
   - D. $\frac{9}{10}, \frac{5}{10}, \frac{2}{10}$

10. Which of the following shows the fractions ordered from the greatest to the least ?
    - A. $\frac{6}{12}, \frac{5}{6}, \frac{3}{10}$
    - B. $\frac{5}{6}, \frac{6}{12}, \frac{3}{10}$
    - C. $\frac{3}{10}, \frac{6}{12}, \frac{5}{6}$
    - D. $\frac{6}{12}, \frac{3}{10}, \frac{5}{6}$

Concept 3

Multiplication and Fractions



Fast Fact

Believe it or not, Koalas can sleep up to $\frac{3}{4}$ of a day! How many hours do they sleep in a day?

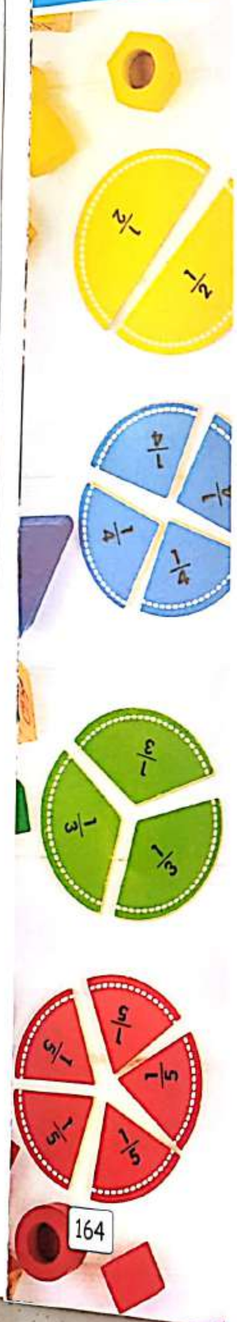
Concept Overview

In concept 3:
Multiplication and Fractions, students continue with fraction equivalence as they explore the Identity Property of Multiplication and apply it to fractions. They use multiples to find equivalent fractions and use multiplication and division to determine missing numerators and denominators. Next, students explore multiplying a whole number by a fraction with models to practice viewing this as repeated addition. Finally, they apply their knowledge from the entire unit to solve fraction story problems.

Lesson No.	Lesson Name	Vocabulary Terms	Learning Objectives
Lesson 7	9-13 Fractions and the Identity Property	Review vocabulary as needed.	• Students will explain use the Identity Property of Multiplication to generate equivalent fractions.
	9-14 Different Numbers, Same Value	Equivalence - Factor - Simplest Form - Simplify	• Students will multiply and divide to generate equivalent fractions.
	9-15 Many Missing Multiples	Equivalence - Factor - Multiple	• Students will explain the relationship between multiples and equivalent fractions.
Lesson 8	9-16 Multiplying by a Whole	Compose - Decompose - Factor - Product - Unit fraction	• Students will multiply a fraction by a whole number.
Lesson 9	9-17 Real-World Fraction Connection	Review concept vocabulary as needed	• Students will solve story problems involving fractions.

Lesson 7

9-13 Fractions and Identity Property
9-14 Different Numbers, Same Value
9-15 Many Missing Multiples



Learn Fractions and the identity property (Equivalent fractions)

Property :

When you multiply any number by 1, the product is equal to that number.

- This property is called **identity property of multiplication**.
- 1 is called the **multiplicative identity element**.

For example :

- $35 \times 1 = 35$
- $1 \times 3{,}205 = 3{,}205$
- $\frac{1}{2} \times 1 = \frac{1}{2}$
- $1 \times \frac{5}{8} = \frac{5}{8}$

You can use this property to find equivalent fractions as follows.

$\frac{1}{2} \times 1 = \frac{1}{2}$

You can write 1 as a fraction.

$1 = \frac{2}{2}$

Then, $\frac{1}{2} \times \frac{2}{2} = \frac{1 \times 2}{2 \times 2} = \frac{2}{4}$

So, $\frac{1}{2} = \frac{2}{4}$ ➡ $\frac{1}{2}$ and $\frac{2}{4}$ are equivalent fractions.

Remember

Equivalent fractions are fractions have the same value, even though they may look different.

Notes for parents :

- Remind your child that 1 is the identety element in multiplication operation. Let him/her use that to find equivalent fractions.

Learn Different numbers, same value (Many missing multiples)

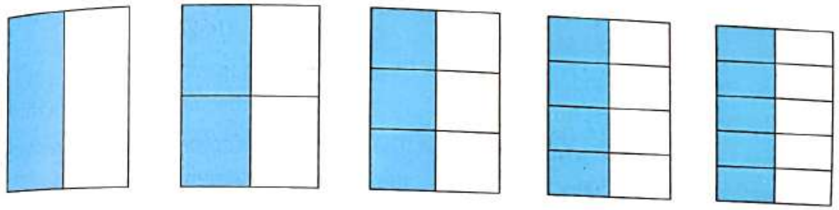
- There are many ways to write 1 as a fraction.

In every case, the numerator and denominator are the same.

$$1 = \frac{2}{2} = \frac{3}{3} = \frac{4}{4} = \frac{5}{5} = \dots$$

So, $\frac{1}{2} = \frac{1}{2} \times \frac{2}{2} = \frac{1}{2} \times \frac{3}{3} = \frac{1}{2} \times \frac{4}{4} = \frac{1}{2} \times \frac{5}{5} = \dots$

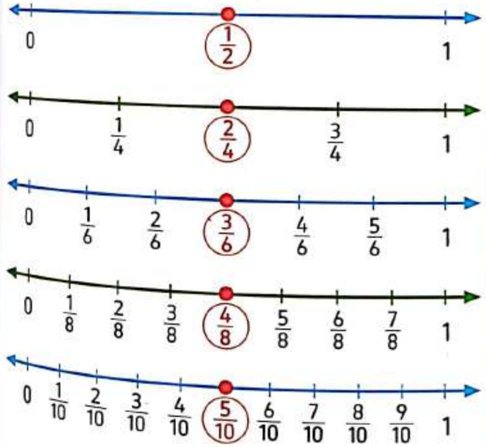
$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10} = \dots$$



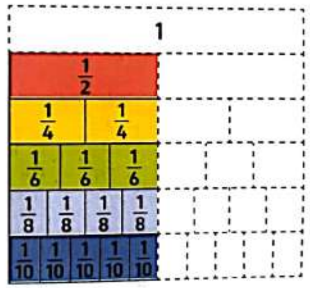
$\frac{1}{2}$, $\frac{2}{4}$, $\frac{3}{6}$, $\frac{4}{8}$ and $\frac{5}{10}$ are all equivalent fractions.

- You can use a number line and a fraction wall to show the equivalent fractions.

Number line



Fraction wall



$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10}$$

- Your child can use multiply by 1 to find more equivalent fractions.

Learn How can you find equivalent fractions using multiplication or division ?

- You can multiply both the numerator and denominator of a fraction by any number except zero to find equivalent fractions.
- If the numerator and denominator have a common factor, you can also divide both by that factor to find an equivalent fraction.

Example 1

Find two fractions that are equivalent to $\frac{4}{8}$

Solution

One Way Use multiplication

Multiply both the numerator and denominator by the same non zero number.

The number 2 is easy to use, so multiply the numerator and denominator by 2.

$$\frac{4}{8} = \frac{4 \times 2}{8 \times 2} = \frac{8}{16}$$

Another Way Use division

Divide both the numerator and denominator by the same non zero number.

The number 4 is a common factor, so divide the numerator and denominator by 4.

$$\frac{4}{8} = \frac{4 \div 4}{8 \div 4} = \frac{1}{2}$$

So, $\frac{4}{8}$, $\frac{8}{16}$ and $\frac{1}{2}$ are all equivalent fractions.

More examples :

a. $\frac{1}{2} \overset{\times 2}{\underset{\times 2}{=}} \frac{2}{4}$

b. $\frac{2}{5} \overset{\times 3}{\underset{\times 3}{=}} \frac{6}{15}$

c. $\frac{8}{12} \overset{\div 4}{\underset{\div 4}{=}} \frac{2}{3}$

d. $\frac{6}{10} \overset{\div 2}{\underset{\div 2}{=}} \frac{3}{5}$

Check your understanding

Complete to find equivalent fractions.

a. $\frac{1}{3} = \frac{\square}{\square}$ (×4, ×4)

b. $\frac{3}{6} = \frac{\square}{\square}$ (÷3, ÷3)

c. $\frac{2}{7} \overset{\times 2}{\underset{\times 2}{=}} \frac{\square}{\square}$

d. $\frac{4}{16} = \frac{\square}{\square}$ (÷4, ÷4)

Notes for parents :

- Give your child fraction as $\frac{8}{12}$, ask him/her to find equivalent fractions, once by multiplication and another by division.

Remember How to find the missing numerator or denominator in equivalent fractions ?

To find the missing numerator, decide if the denominator is multiplied or divided by a number, then do the same with numerator.

Example 2

Find the missing numerator or denominator.

a. $\frac{2}{5} = \frac{_}{15}$

b. $\frac{8}{12} = \frac{4}{_}$

Solution

a. 5 is multiplied by 3 to be 15

$\frac{2}{5} \underset{\times 3}{=} \frac{\square}{15}$

Multiply 2 by 3 also , you will get 6 in the numerator

$\frac{2}{5} \overset{\times 3}{=} \frac{6}{15}$

b. 8 is divided by 2 to be 4

$\frac{8}{12} = \frac{4}{\square}$ (÷2)

Divide 12 by 2 also , you will get 6 in the denominator

$\frac{8}{12} = \frac{4}{6}$ (÷2)

Check your understanding

Complete.

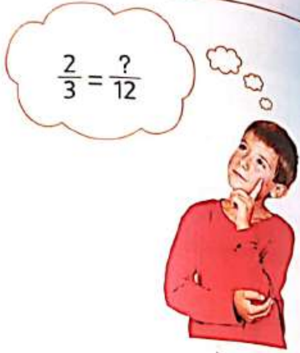
a. $\frac{2}{3} = \frac{\square}{9}$	b. $\frac{4}{6} = \frac{12}{\square}$	c. $\frac{3}{6} = \frac{\square}{2}$
d. $\frac{2}{7} = \frac{\square}{14}$	e. $\frac{8}{10} = \frac{4}{\square}$	f. $\frac{\square}{6} = \frac{10}{12}$

- Ask your child how he/she find the missing numerator in $(\frac{1}{5} = \frac{?}{10})$ and how he/she find the missing denominator in $(\frac{12}{15} = \frac{4}{?})$.

Example 3

Amgad has 12 marbles. $\frac{2}{3}$ of them are red.

What is the number of red marbles does Amgad have ?



Solution

$\frac{2}{3} \underset{\times 4}{\overset{\times 4}{=}} \frac{?}{12}$

$\frac{2}{3} = \frac{8}{12}$

The number of red marbles is 8 marbles.

Check your understanding

Mai baked 24 pieces of cake. If $\frac{3}{4}$ of them are with chocolate cake.

What is the number of chocolate cake she baked ?

____

____

Enrich your knowledge Simplest form

▸ A fraction is in **simplest form** when 1 is the only number that divides both the numerator and the denominator with no remainder.

These fractions are in simplest form.	These fractions are not in simplest form.
$\frac{1}{2}$ $\frac{2}{3}$ $\frac{3}{8}$ $\frac{2}{7}$ $\frac{5}{9}$	$\frac{2}{4}$ $\frac{4}{8}$ $\frac{3}{15}$ $\frac{6}{9}$ $\frac{8}{12}$

Bassem and Marwan both used equivalent fractions to write $\frac{12}{18}$ in simplest form.

Bassem

$\frac{12}{18} = \frac{12 \div 2}{18 \div 2} = \frac{6}{9}$

$\frac{6}{9} = \frac{6 \div 3}{9 \div 3} = \frac{2}{3}$

$\frac{2}{3}$ is in simplest form.

Could Bassem have divided by 3 first ?

Marwan

$\frac{12}{18} \underset{\div 6}{\overset{\div 6}{=}} \frac{2}{3}$

$\frac{2}{3}$ is in simplest form.

6 is the greatest common factor between 6 and 12

$\frac{2}{3}$ is in simplest form because 1 is the only number that can divide both 2 and 3 with no remainder.

Notes for parents :

• Ask your child to read the story problem carefully, then plane and solve.

Exercise 14

9-13 Fractions and Identity Property
9-14 Different Numbers, Same Value
9-15 Many Missing Multiples

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING | From the school book

1. Complete to find an equivalent fraction.

a. $\frac{1}{3} = \frac{__}{__}$ (× 4, × 4)

b. $\frac{1}{4} = \frac{__}{__}$ (× 3, × 3)

c. $\frac{2}{5} = \frac{__}{__}$ (× 5, × 5)

d. $\frac{3}{4} = \frac{__}{__}$ (× 2, × 2)

e. $\frac{5}{7} = \frac{__}{__}$ (× 6, × 6)

f. $\frac{4}{6} = \frac{__}{__}$ (× 4, × 4)

g. $\frac{3}{6} = \frac{__}{__}$ (÷ 3, ÷ 3)

h. $\frac{4}{8} = \frac{__}{__}$ (÷ 4, ÷ 4)

i. $\frac{4}{16} = \frac{__}{__}$ (÷ 2, ÷ 2)

j. $\frac{10}{15} = \frac{__}{__}$ (÷ 5, ÷ __)

k. $\frac{20}{50} = \frac{__}{__}$ (÷ 10, ÷ __)

l. $\frac{9}{12} = \frac{__}{__}$ (÷ 3, ÷ 3)

2. Complete to find an equivalent fraction.

a. $\frac{2}{3} \times \frac{4}{4} =$ ______

b. $\frac{3}{4} \times \frac{5}{5} =$ ______

c. $\frac{6}{7} \times \frac{3}{3} =$ ______

d. $\frac{9}{11} \times \frac{2}{2} =$ ______

e. $\frac{7}{9} \times \frac{8}{8} =$ ______

f. $\frac{8}{13} \times \frac{10}{10} =$ ______

3. Find a fraction equivalent to each.

a. $\frac{1}{6}$ = ______ b. $\frac{2}{3}$ = ______ c. $\frac{4}{12}$ = ______ d. $\frac{2}{10}$ = ______

e. $\frac{10}{15}$ = ______ f. $\frac{4}{4}$ = ______ g. $\frac{20}{25}$ = ______ h. $\frac{7}{8}$ = ______

4. Write three equivalent fractions to each.

a. $\frac{2}{5}$ = ___ = ___ = ___ b. $\frac{4}{12}$ = ___ = ___ = ___

c. $\frac{4}{6}$ = ___ = ___ = ___ d. $\frac{4}{10}$ = ___ = ___ = ___

e. $\frac{3}{9}$ = ___ = ___ = ___ f. $\frac{4}{20}$ = ___ = ___ = ___

5. Generate at least 5 equivalent fractions for each fraction.

a. $\frac{2}{3}$; ______ ; ______ ; ______ ; ______ ; ______

b. ______ ; $\frac{2}{4}$; ______ ; ______ ; ______ ; ______

c. $\frac{3}{5}$; ______ ; ______ ; ______ ; ______ ; ______

d. ______ ; ______ ; $\frac{3}{9}$; ______ ; ______ ; ______

6. Determine whether each fraction pair is equivalent. If it is, write "true." If it is not, write "false.".

a. $\frac{2}{3} = \frac{6}{9}$ ______ b. $\frac{3}{4} = \frac{6}{8}$ ______ c. $\frac{7}{8} = \frac{2}{3}$ ______

d. $\frac{3}{5} = \frac{6}{8}$ ______ e. $\frac{6}{10} = \frac{2}{5}$ ______ f. $\frac{8}{12} = \frac{4}{6}$ ______

g. $\frac{2}{8} = \frac{1}{4}$ ______ h. $\frac{9}{12} = \frac{2}{4}$ ______ i. $\frac{3}{8} = \frac{1}{6}$ ______

j. $\frac{1}{3} = \frac{4}{12}$ ______ k. $\frac{6}{8} = \frac{30}{40}$ ______ l. $\frac{15}{25} = \frac{4}{5}$ ______

7. Find the missing numerator or denominator to make the fractions equivalent. Record what factor you multiplied or divided by.

a. $\frac{1}{4} = \frac{\square}{12}$ b. $\frac{2}{3} = \frac{\square}{9}$ c. $\frac{2}{4} = \frac{1}{\square}$ d. $\frac{3}{4} = \frac{\square}{12}$

e. $\frac{20}{25} = \frac{\square}{5}$ f. $\frac{5}{7} = \frac{\square}{21}$ g. $\frac{2}{9} = \frac{10}{\square}$ h. $\frac{5}{15} = \frac{15}{\square}$

i. $\frac{10}{70} = \frac{\square}{7}$ j. $\frac{12}{18} = \frac{4}{\square}$ k. $\frac{6}{\square} = \frac{12}{42}$ l. $\frac{\square}{4} = \frac{15}{20}$

m. $\frac{7}{13} = \frac{21}{\square}$ n. $\frac{18}{36} = \frac{3}{\square}$ o. $3 = \frac{12}{\square}$ p. $5 = \frac{\square}{10}$

8. Find the value of X.

a. $\frac{9}{12} = \frac{X}{4}$ b. $\frac{18}{27} = \frac{2}{X}$ c. $\frac{X}{5} = \frac{15}{15}$

d. $\frac{X}{4} = \frac{2}{8}$ e. $\frac{10}{X} = \frac{2}{3}$ f. $\frac{X}{42} = \frac{1}{7}$

9. Put (✓) for the correct statement and (X) for the incorrect one.

a. Fractions that name the same amount are unit fractions. [ ]

b. You can multiply the same number by the numerator and denominator to find equivalent fractions. [ ]

c. You can add the same number to the numerator and denominator to find equivalent fractions. [ ]

d. 0 is the identity element in the multiplication operation. [ ]

e. The two fractions $\frac{6}{15}$ and $\frac{2}{5}$ are equivalent. [ ]

f. The two fractions $\frac{2}{8}$ and $\frac{4}{16}$ are equivalent. [ ]

g. $\frac{3}{4} = \frac{21}{28}$ [ ] h. $\frac{18}{36} = \frac{2}{6}$ [ ]

i. If $\frac{3}{5} = \frac{X}{15}$, then X = 9 [ ] j. $\frac{4}{4} = \frac{8}{X}$, then X = 4 [ ]

10. Match each fraction to its equivalent fraction.

$\frac{1}{4}$ $\frac{14}{16}$ $\frac{15}{40}$ $\frac{5}{5}$ $\frac{1}{2}$

$\frac{3}{8}$ $\frac{4}{8}$ $\frac{2}{8}$ $\frac{7}{8}$ $\frac{8}{8}$

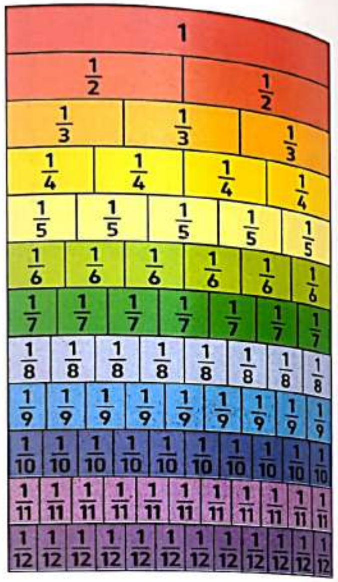
11. Use the fraction wall to answer the questions.

a. How many halves are in 1 whole ?
Using halves, how would you write 1 whole as a fraction. ________

b. How many fourths are in 1 whole ?
Use fourths, how would you write 1 whole as a fraction. ________

c. How many tenths are in 1 whole ?
Use tenths, how would you write 1 whole as a fraction. ________

d. Explain the pattern and why each of the fractions you wrote equals 1 whole. ________



e. Using what you know, how many 25ths are in 1 whole ?

12. Write about it. Tony says that $\frac{2}{3}$ and $\frac{16}{25}$ are equivalent fractions. Is he correct ?
Explain your thinking.

13. Can you add the same number to the numerator and denominator to find equivalent fractions ?
Why or why not ? Give an example.

14. Explain why $\frac{6}{9}$ is not equivalent to $\frac{9}{12}$.

15. There are 16 birds on a tree. $\frac{3}{4}$ of them flew away. What is the number of birds that flew away ?

16. Nabil had 9 cookies. $\frac{2}{3}$ of them were chocolate chip.
Haw many cookies were chocolate chip ?
[Hint : $\frac{2}{3} = \frac{?}{9}$]

17. Heba has two cakes that were the same size. She cut the first cake into 6 pieces and frosted 2 of the pieces with chocolate. She cut the second cake into 18 pieces. If she wanted to frost the same fraction of the second cake with chocolate, how many pieces should she frost ? How do you know ? Draw a fraction model if necessary.

18. Sally's team won 10 of 15 games.
Sylvia's team played 6 games and won the same fraction of their games as Sally's.
How many games did Sylvia's team win ?
Explain your thinking.

19. Omar's Om Ali. Omar made a pan of Om Ali, his favorite dessert. The pan contains 12 equal servings. Omar shares 3 servings with his friend Heba. What is the simplest form of the fraction of the Om Ali Omar gave his friend?

____

20. Nadia's cake. Nadia owns a bakery. She made a cake and decorated it as shown.
There are 12 equal pieces total:
6 pieces have flowers, 4 are plain with no decorations, and the other 2 have something else.

Answer the questions based on Nadia's cake.

1. One-half of the customers want pieces with flowers. What fraction of the cake will they eat? How many pieces?
____
2. One-third of the customers want pieces with no decorations. What fraction of the cake will they eat? How many pieces?
____
3. What fraction of the cake is left?
____
4. If Nadia cuts all the pieces that are left into two, what fraction is now left?
____

Challenge

21. I am a fraction. Each of $\frac{6}{18}$ and $\frac{10}{30}$ is equivalent to me.
Each of my numerator and my denominator is less than 5. **Who am I?** ______

Multiple Choice Questions

Choose the correct answer.

1. Which of the following shows the identity property of multiplication?

A. 0×4 B. $\frac{2}{3} \times 1$
C. $\frac{4}{5} \times \frac{5}{4}$ D. $\frac{5}{7} + 0$

2. Which of the following shows the identity property of multiplication?

A. $\frac{3}{7} \times \frac{4}{4}$ B. $\frac{5}{6} \times 0$
C. $1 + \frac{4}{5}$ D. $\frac{4}{7} + 0$

3. $\frac{2}{5} =$ ______

A. $\frac{2}{10}$ B. $\frac{6}{15}$
C. $\frac{4}{5}$ D. $\frac{6}{20}$

4. $\frac{6}{16} =$ ______

A. $\frac{2}{4}$ B. $\frac{12}{30}$
C. $\frac{6}{6}$ D. $\frac{3}{8}$

5. $\frac{4}{12} =$ ______

A. $\frac{1}{4}$ B. $\frac{12}{24}$
C. $\frac{8}{24}$ D. $\frac{8}{12}$

6. $\frac{2}{8} =$ ______

A. $\frac{1}{4}$ B. $\frac{4}{18}$
C. $\frac{2}{18}$ D. $\frac{4}{4}$

7. $\frac{3}{4} =$ ______

A. $\frac{4}{5}$ B. $\frac{3}{40}$
C. $\frac{2}{3}$ D. $\frac{15}{20}$

8. $\frac{2}{10} =$ ______

A. $\frac{1}{2}$ B. $\frac{10}{50}$
C. $\frac{3}{30}$ D. $\frac{10}{20}$

9. Which fraction is equivalent to $\frac{4}{5}$?

A. $\frac{8}{10}$ B. $\frac{8}{15}$
C. $\frac{16}{25}$ D. $\frac{20}{35}$

10. Which fraction is equivalent to $\frac{21}{49}$?

A. $\frac{1}{9}$ B. $\frac{20}{48}$
C. $\frac{22}{50}$ D. $\frac{3}{7}$

11. Which of the following fractions is equivalent to 1?

A. $\frac{2}{3}$ B. $\frac{2}{4}$ C. $\frac{5}{5}$ D. $\frac{1}{5}$

12. What is the product of $\frac{3}{5} \times \frac{3}{3}$?

A. $\frac{3}{5}$ B. $\frac{6}{8}$ C. $\frac{3}{15}$ D. $\frac{9}{5}$

13. What is the missing denominator? $\frac{3}{4} = \frac{9}{\square}$

A. 3 B. 10 C. 12 D. 36

14. What is the missing numerator? $\frac{25}{35} = \frac{\square}{7}$

A. 3 B. 5 C. 10 D. 15

15. What is the factor you multiply to find the equivalent fractions to $\frac{2}{3}$?

$$\frac{2}{3} \xrightarrow{\times ?} = \frac{10}{15}$$

A. 2 B. 5 C. 8 D. 12

16. Which of the following is NOT true?

A. $\frac{5}{15} = \frac{1}{3}$ B. $\frac{1}{6} = \frac{3}{18}$ C. $\frac{7}{8} = \frac{8}{7}$ D. $\frac{3}{3} = \frac{4}{4}$

17. Which two fractions are equivalent to $\frac{24}{36}$?

A. $\frac{4}{6}$ B. $\frac{14}{26}$ C. $\frac{22}{34}$ D. $\frac{6}{9}$ E. $\frac{12}{24}$

18. Mina has 21 apples. Two thirds of the apples are green. How many apples are green?

A. $\frac{1}{3}$ B. $\frac{2}{3}$ C. 7 D. 14

9-16 Multiplying by a Whole

Learn How to multiply a fraction by a whole number ?

Remember

Multiplication is repeated addition.

For example:

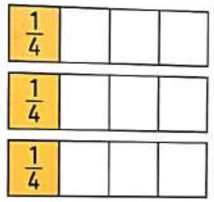
$3 + 3 + 3 + 3 = 4 \times 3 = 12$

Problem

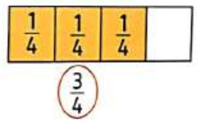
Eman drinks $\frac{1}{4}$ bottle of milk every day.

How much milk does she drink in 3 days?

- The models show 3 groups of $\frac{1}{4}$



- You can use one model to show the answer.



- **Also, you can use repeated addition:**

$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$

or you can use multiplication:

$3 \times \frac{1}{4} = \frac{3}{4}$

Note that

- $3 \times \frac{1}{4} \neq 3\frac{1}{4}$ but: $3 \times \frac{1}{4} = \frac{3}{4}$
- $3 + \frac{1}{4} = 3\frac{1}{4}$

Notes for parents:

- Explain that the properties of multiplication of whole numbers apply to fractions.

Remark

When you multiply a proper fraction and a whole number (except 0 and 1), the product is less than the whole number factor, but greater than the fraction factor.

For example :

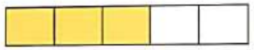
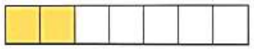
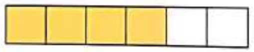
$3 \times \frac{1}{4} = \frac{3}{4}$ $\quad [\frac{3}{4} < 3 \quad , \text{ but: } \frac{3}{4} > \frac{1}{4}]$

Example 1

Draw a bar model and write an addition and multiplication sentence for each of the following fractions.

a. $\frac{3}{5}$ | b. $\frac{2}{7}$ | c. $\frac{4}{6}$

Solution

		Model	Addition sentence	Multiplication sentence
a.	$\frac{3}{5}$		$\frac{3}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$	$\frac{3}{5} = 3 \times \frac{1}{5}$
b.	$\frac{2}{7}$		$\frac{2}{7} = \frac{1}{7} + \frac{1}{7}$	$\frac{2}{7} = 2 \times \frac{1}{7}$
c.	$\frac{4}{6}$		$\frac{4}{6} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$	$\frac{4}{6} = 4 \times \frac{1}{6}$

Example 2

Multiply

a. $5 \times \frac{1}{7} =$ ______ | b. $4 \times \frac{1}{9} =$ ______ | c. $\frac{1}{3} \times 3 =$ ______

d. $10 \times \frac{1}{5} =$ ______ | e. $\frac{3}{4} \times 2 =$ ______ | f. $\frac{2}{9} \times 4 =$ ______

Notes for parents :

- Remind your child that when we multiply a fraction and a whole number (except 0 and 1), the product is less than the whole number factor, but greater than the fraction factor. This is different from multiplying whole numbers because the product is always greater than either factor.

Solution

a. $5 \times \frac{1}{7} = \frac{5}{7}$

b. $4 \times \frac{1}{9} = \frac{4}{9}$

c. $\frac{1}{3} \times 3 = \frac{3}{3} = 1$

d. $10 \times \frac{1}{5} = \frac{10}{5} = 2$

e. $\frac{3}{4} \times 2 = (\frac{1}{4} + \frac{1}{4} + \frac{1}{4}) \times 2$ $\quad$ (Hint : $\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$)

$= (\frac{1}{4} + \frac{1}{4} + \frac{1}{4}) + (\frac{1}{4} + \frac{1}{4} + \frac{1}{4}) = \frac{6}{4}$

Another solution :

$\frac{3}{4} \times 2 = \frac{3}{4} + \frac{3}{4} = \frac{6}{4}$

f. $\frac{2}{9} \times 4 = (\frac{1}{9} + \frac{1}{9}) + (\frac{1}{9} + \frac{1}{9}) + (\frac{1}{9} + \frac{1}{9}) + (\frac{1}{9} + \frac{1}{9}) = \frac{8}{9}$

Another solution :

$\frac{2}{9} \times 4 = \frac{2}{9} + \frac{2}{9} + \frac{2}{9} + \frac{2}{9} = \frac{8}{9}$

Check your understanding

1. Draw a bar model and write an addition and multiplication sentence for $\frac{3}{8}$.

2. Multiply.

a. $\frac{1}{4} \times 5 =$ ______ | b. $3 \times \frac{1}{9} =$ ______ | c. $\frac{2}{5} \times 2 =$ ______

• $\frac{2}{6} \times 2 = \frac{4}{6}$, this may be a bit more challenging, but the addition equation and a bar model may clarify.

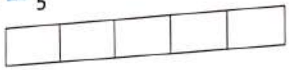
Exercise 15

9-16 Multiplying by a Whole

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

1. Draw a bar model and write an addition and multiplication sentence for each of the following fractions.

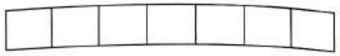
a. $\frac{2}{5}$



Addition sentence : ______

Multiplication sentence : ______

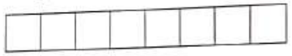
b. $\frac{3}{7}$



Addition sentence : ______

Multiplication sentence : ______

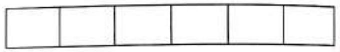
c. $\frac{5}{8}$



Addition sentence : ______

Multiplication sentence : ______

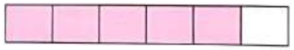
d. $\frac{4}{6}$



Addition sentence : ______

Multiplication sentence : ______

2. Write the fraction for each bar model and write an addition and multiplication sentence for each fraction.

a. 

Fraction : ______

Addition sentence : ______

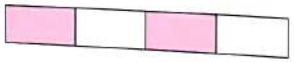
Multiplication sentence : ______

b.

Fraction : ______

Addition sentence : ______

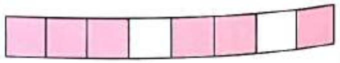
Multiplication sentence : ______

c. 

Fraction : ______

Addition sentence : ______

Multiplication sentence : ______

d. 

Fraction : ______

Addition sentence : ______

Multiplication sentence : ______

3. Draw a bar model for each of the following sentences.

a. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$

b. $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$

c. $4 \times \frac{1}{9}$

d. $\frac{1}{3} \times 5$

4. Complete each of the following.

a. $\frac{1}{5} \times 2 =$ ______

b. $\frac{1}{7} \times 5 =$ ______

c. $\frac{1}{9} \times 4 =$ ______

d. $8 \times \frac{1}{9} =$ ______

e. $\frac{1}{4} \times 3 =$ ______

f. $2 \times \frac{1}{6} =$ ______

g. $\frac{1}{3} \times 3 =$ ______

h. $\frac{3}{7} \times 2 =$ ______

i. $3 \times \frac{2}{7} =$ ______

5. Put (✓) to the correct statement and (✗) to the incorrect one.

a. $3 \times \frac{1}{7} = \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$ ( )

b. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = 3 \times \frac{1}{5}$ ( )

c. $5 \times \frac{1}{4} = 5\frac{1}{4}$ ( )

d. $3 \times \frac{1}{2} = 1\frac{1}{2}$ ( )

e. $2 \times \frac{1}{4} = \frac{1}{4} \times 2$ ( )

f. $\frac{2}{9} \times 4 = \frac{6}{9}$ ( )

g. $\frac{6}{7} = \frac{2}{7} + \frac{2}{7} + \frac{2}{7}$ ( )

h. $\frac{1}{5} \times 5 = 1$ ( )

6. Match.

a. $\frac{1}{5} + \frac{1}{5}$

b. $5 \times \frac{1}{2}$

c. $5 \times \frac{1}{3}$

d. $2 \times \frac{1}{2}$

e. $\frac{1}{5} \times 3$

1. $\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}$

2. 1

3. $2 \times \frac{1}{5}$

4. $3 \times \frac{1}{5}$

5. $1\frac{2}{3}$

7. Sally drinks $\frac{1}{5}$ of a carton of milk each day.

How much milk does she drink in 4 days?

Express your answer as a sum of unit fractions,

and as an equivalent multiplication sentence.

Draw a bar model if necessary.

8. If it takes $\frac{2}{6}$ of a bag of flour for

a cookie recipe,

how much flour will it take to double the recipe?

9. At a birthday party, there are 7 children.

If each child eats $\frac{2}{9}$ of a pizza,

how many pizzas will be eaten?

Challenge

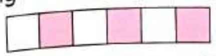
10. What do you notice about the factors and product when you multiply a proper fraction by a whole number?

How is this different from multiplying a whole number by a whole number?

Multiple Choice Questions

Choose the correct answer.

1. Which sentence represents the following bar model?

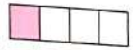
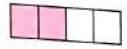


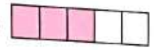
A. $6 \times \frac{1}{3}$ B. $\frac{1}{3} \times 3$

C. $3 + \frac{1}{6}$ D. $3 \times \frac{1}{6}$

2. Which bar model represents the following multiplication equation?

$$3 \times \frac{1}{4}$$

A.  B. 

C. D. 

3. $\frac{1}{6} + \frac{1}{6} =$ ______

A. $6 \times \frac{1}{2}$ B. $2 \times \frac{1}{6}$

C. 6×2 D. $\frac{1}{2}$

4. $3 \times \frac{1}{2} =$ ______

A. $2 \times \frac{1}{3}$ B. $\frac{1}{2} + \frac{1}{2}$

C. $3 + 3 + 3$ D. $1\frac{1}{2}$

5. $\frac{1}{10} \times 10 =$ ______

A. $\frac{1}{100}$ B. $\frac{1}{10}$

C. 1 D. 10

6. $\frac{2}{7} \times 3 =$ ______

A. $\frac{5}{7}$ B. $\frac{6}{7}$

C. $\frac{5}{21}$ D. $\frac{6}{21}$

7. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} =$ ______

A. $\frac{4}{20}$ B. $\frac{1}{5} \times 4$

C. $\frac{11}{5}$ D. $1\frac{1}{5}$

8. $7 \times \frac{1}{10} =$ ______

A. $7\frac{1}{10}$ B. 70

C. $\frac{2}{10} + \frac{5}{10}$ D. $\frac{7}{70}$

9. $5 \times \frac{1}{6} =$ ______

A. $\frac{5}{30}$ B. $\frac{6}{6}$

C. $5\frac{1}{6}$ D. $1 \times \frac{5}{6}$

10. $3 \times \frac{1}{4} =$ ______

A. $4 \times \frac{1}{3}$ B. $\frac{1}{4} + \frac{2}{4}$

C. $3\frac{1}{4}$ D. 1

Lesson 9

9-17 Real-World Fraction Connection

Learn

- In this lesson, you will solve story problems involving fractions.

Problem :

If $3\frac{3}{4}$ mL of cough syrup is used from a $9\frac{1}{4}$ mL bottle, how much is left?

Understanding

- What do you want to find out ?

Circle the questions.

Plan

- What facts do you need ?

Underline them.

Solve

- The left = $9\frac{1}{4} - 3\frac{3}{4} = 8\frac{5}{4} - 3\frac{3}{4} = \boxed{5\frac{2}{4} = 5\frac{1}{2} \text{ mL}}$

Example

Find the total width of 3 boards that $1\frac{3}{8}$ m wide, $\frac{7}{8}$ m wide, and $1\frac{1}{8}$ m wide.

Solution

The total = $1\frac{3}{8} + \frac{7}{8} + 1\frac{1}{8} = 2\frac{11}{8} = 3\frac{3}{8}$ m.

Check your understanding

Calculate the perimeter of a square of side length $\frac{1}{5}$ m.

____

____

Notes for parents :

- Help your child read each story problem carefully and plan to solve.

Exercise 16

9-17 Real-World Fraction Connection

REMEMBER | UNDERSTAND | APPLY | PROBLEM SOLVING | From the school book

1. $3\frac{1}{4}$ meters are cut off a board that is $12\frac{3}{4}$ meters long.

How long is the remaining part of the board ?

____

____

2. Heba is making pancake batter. The recipe calls for $\frac{5}{8}$ of a jug of milk, and she only has $\frac{2}{8}$ of a jug of milk.

How much more milk does Heba need to make the pancake batter ?

____

____

3. Kareem runs to train for the big race. On Monday he runs $\frac{4}{2}$ kilometer, on Wednesday he runs $\frac{1}{2}$ kilometer, and on Friday he runs $\frac{6}{2}$ kilometer.

How many kilometers did Kareem run in all ?

____

____

4. Samira and her family are celebrating her birthday with cake. They cut the cake into 8 equal slices. If Samira, her mom, her dad, and her brother each have 1 slice of the cake,

What fraction of the cake is left ?

____

____

5. A runner jogs $7\frac{1}{5}$ km east, $5\frac{1}{5}$ km south, and $8\frac{2}{5}$ km west. **How far has he jogged ?**

6. Over the course of a week, Adam drank $1\frac{3}{4}$ liters of juice and Omar drank $1\frac{7}{8}$ liters of juice.
Who drank more ?

7. Tahani baked a bunch of cakes for dessert. She ate on Monday $\frac{2}{8}$ of them, and on Tuesday $\frac{5}{8}$ of them. **What is the fraction that represents the number of cakes that Tahani ate ?**

8. Ahmed ran $1\frac{2}{9}$ km, and Yousef ran $\frac{8}{9}$ km. **What is the difference between the two distances ?**

9. Bassem painted $\frac{5}{16}$ of a wall with red. **What is the remainder of the wall to be painted ?**

10. Yassin had a homework consisting of nine problems. He finished solving $\frac{1}{9}$ of it before returning home. When he came home, he completed $\frac{5}{9}$ of it. **What fraction represents the remainder of the homework ?**

11. Ahmed used $\frac{5}{8}$ can of blue paint and $\frac{2}{8}$ can of white paint. **How much more blue paint than white paint did he use ?**

12. Enas made a pattern by using shapes. Of the shapes, $\frac{9}{12}$ were squares and $\frac{3}{12}$ were circles. **What fraction tells how many more squares than circles she used ?**

13. A jar had $\frac{3}{4}$ cup of peanuts inside. Mina and Bassem each ate $\frac{1}{4}$ cup of peanuts. **How much of the peanuts are left ?**

Challenge

14. **Create Your Own Problem.**
Write and solve your own fraction addition or subtraction story problem. Use one of the expressions provided or create your own.

Sample expressions : • $2\frac{2}{7} + 1\frac{5}{7}$ • $3\frac{7}{10} - 1\frac{8}{10}$

Multiple Choice Questions

Choose the correct answer.

1. A log is $\frac{8}{10}$ meter long. Sameh cuts off a piece that is $\frac{3}{10}$ meter long. What is the length of the log now?

   A. $1\frac{1}{10}$ B. $\frac{5}{10}$ C. $\frac{11}{10}$ D. $\frac{1}{10}$

2. Sara has $\frac{8}{8}$ meter of fabric. She uses $\frac{6}{8}$ meter to make a pillow. How much of the meter of fabric is left?

   A. $\frac{1}{4}$ B. $\frac{3}{8}$ C. $\frac{1}{2}$ D. $\frac{3}{4}$

3. A submarine sandwich was cut into 12 equal pieces. Peter ate $\frac{3}{12}$, Taj ate $\frac{2}{12}$, and Marissa ate $\frac{5}{12}$. What fraction of the sandwich did they eat altogether?

   A. $\frac{5}{12}$ B. $\frac{7}{12}$ C. $\frac{10}{12}$ D. $\frac{12}{12}$

4. Mariam ordered a pizza that was $\frac{1}{4}$ sausage, $\frac{1}{4}$ cheese, $\frac{1}{4}$ pepperoni, and the rest was mushroom. What fraction of the pizza represented the sum of sausage and mushroom?

   A. $\frac{1}{8}$ B. $\frac{1}{4}$ C. $\frac{2}{4}$ D. $\frac{3}{4}$

5. Sandy makes a cake. The recipe required $\frac{7}{9}$ liter of milk, but Sandy only has $\frac{5}{9}$ liter of milk. How much milk does Sandy need to prepare a cake?

   A. $\frac{2}{9}$ B. $\frac{12}{9}$ C. $\frac{7}{9}$ D. $\frac{3}{9}$

6. Some children ate $\frac{4}{12}$ of a veggie pizza, $\frac{9}{12}$ of a pepperoni pizza, and $\frac{11}{12}$ of a cheese pizza. All 3 pizzas were the same size. What fraction tells how much more cheese pizza than veggie pizza the children ate?

   A. $\frac{15}{12}$ B. $\frac{2}{12}$ C. $\frac{7}{12}$ D. $\frac{5}{12}$

7. In a relay race, Hany ran $1\frac{1}{5}$ km, Amgad ran $1\frac{2}{5}$ km, and Wael ran $1\frac{3}{5}$ km. How far did Hany and Wael run altogether?

   A. $1\frac{3}{5}$ B. $2\frac{3}{5}$ C. $2\frac{4}{5}$ D. $4\frac{1}{5}$

Unit Nine Assessments

Model 1

1. Choose the correct answer.

   a. $\frac{3}{8}$ = ...

   A. $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$ B. $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}$ C. $\frac{2}{8}+1$ D. $\frac{1}{8}+2$

   b. $\frac{14}{3}$ = ... as a mixed number.

   A. $4\frac{1}{3}$ B. $3\frac{2}{4}$ C. $4\frac{2}{3}$ D. $2\frac{2}{3}$

   c. $\frac{3}{8}$ > ....

   A. $\frac{3}{4}$ B. $\frac{5}{8}$ C. $1\frac{1}{8}$ D. $\frac{1}{8}$

2. Complete.

   a. $5\frac{1}{6}+1\frac{4}{6}$ = ... b. $2+\frac{1}{7}+3+\frac{3}{7}$ = ... c. $2-\frac{2}{9}$ = ...

3. Match.

a.	$\frac{3}{4}$ = ...	1.	$\frac{2}{7}$
b.	$5\times\frac{1}{4}$ = ...	2.	$\frac{15}{20}$
c.	$1-\frac{3}{7}-\frac{2}{7}$ = ...	3.	$\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}$
d.	$1\frac{5}{7}$ = ...	4.	$\frac{5}{4}$
e.	1 = ...	5.	$\frac{12}{7}$

4. Put (✓) to the correct statement and (✗) to the incorrect one.

   a. $\frac{5}{7} > \frac{2}{7}$ [ ]

   b. $\frac{7}{8} > \frac{1}{2}$ [ ]

   c. $3+4+\frac{1}{3}=\frac{8}{3}$ [ ]

5. Sara is making pancake batter. The recipe calls for $\frac{7}{10}$ of a jug of milk, and she only has $\frac{2}{10}$ of a jug of milk. How much more milk does Sara need to make the pancake batter?

   ....

Model 2

1. Choose the correct answer.

a. Which of the following is the least ?

A. $\frac{4}{9}$ B. $\frac{7}{9}$ C. $\frac{2}{9}$ D. 1

b. $2\frac{3}{7}$ = ... as an improper fraction.

A. $\frac{17}{3}$ B. $\frac{17}{7}$ C. $\frac{14}{7}$ D. $\frac{11}{7}$

c. $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$ = ...

A. $\frac{4}{5}$ B. $\frac{111}{5}$ C. $3\times\frac{1}{5}$ D. $\frac{3}{15}$

2. Complete.

a. $7\frac{3}{9}$ − .... $=4\frac{1}{9}$ b. $\frac{5}{8}=\frac{\dots}{40}$ c. .... $-2\frac{1}{5}=3\frac{3}{5}$

3. Match.

a.	$4+\frac{2}{8}+3+\frac{5}{8}=$	1.	$\frac{3}{8}+\frac{2}{8}$
b.	$\frac{1}{2}>$	2.	$2\frac{7}{8}$
c.	$5\times\frac{1}{8}=$	3.	$\frac{14}{16}$
d.	$3-\frac{1}{8}=$	4.	$\frac{3}{8}$
e.	$\frac{7}{8}=$	5.	$7\frac{7}{8}$

4. Put (✓) to the correct statement and (✗) to the incorrect one.

a. $\frac{2}{5}+\frac{1}{5}<\frac{2}{7}+\frac{1}{7}$ [ ]

b. $\frac{4}{5}=\frac{40}{50}$ [ ]

c. $\frac{3}{5}$ is a unit fraction. [ ]

5. Use the benchmark fractions 0 , $\frac{1}{2}$, 1 to order the following fractions from least to greatest.

$\frac{3}{8}$, $\frac{7}{9}$, $\frac{5}{10}$

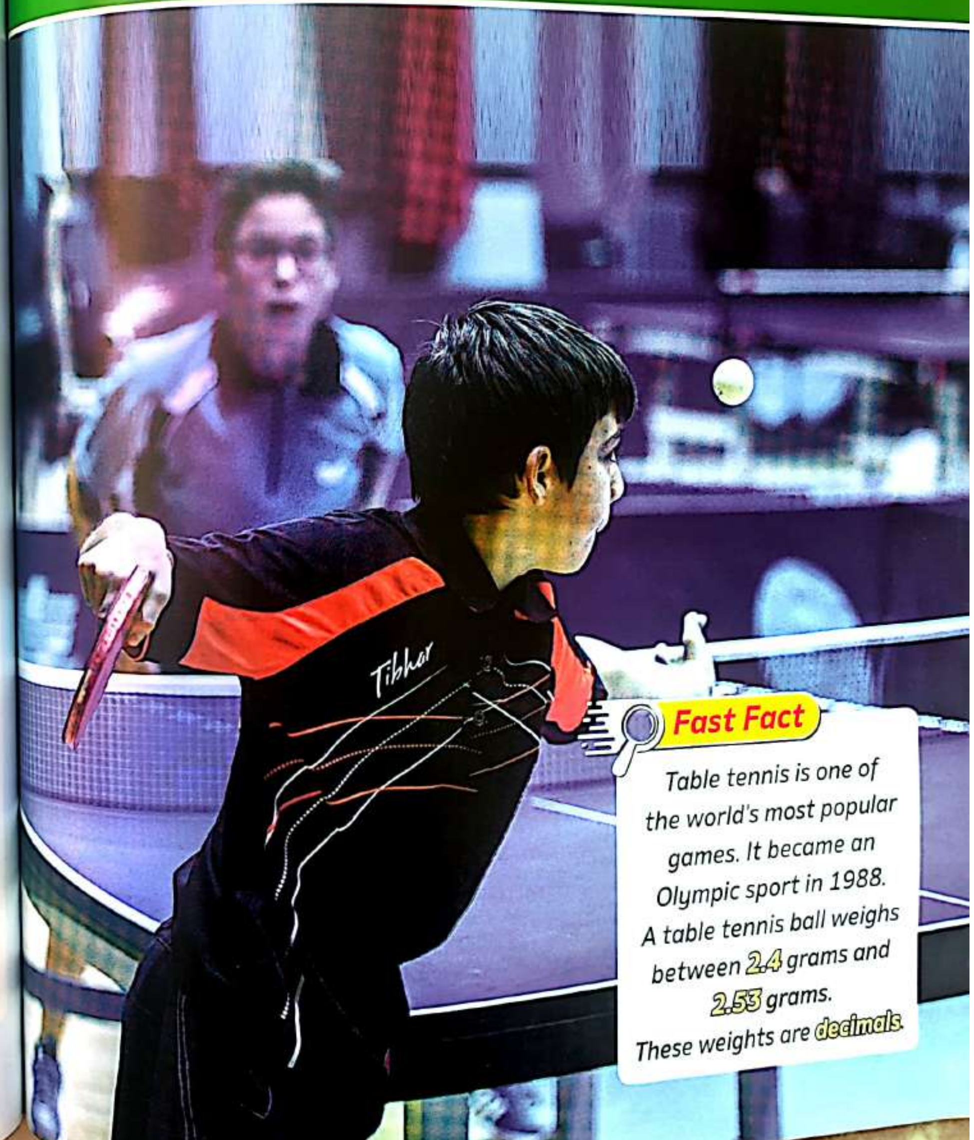
Theme 3 | Fractions, Decimals, and Porportional Relationships

UNIT 10 Decimals

» **Concept 1 :** Defining Decimals

» **Concept 2 :** Decimals and Fractions

» **Concept 3 :** Working with Decimals

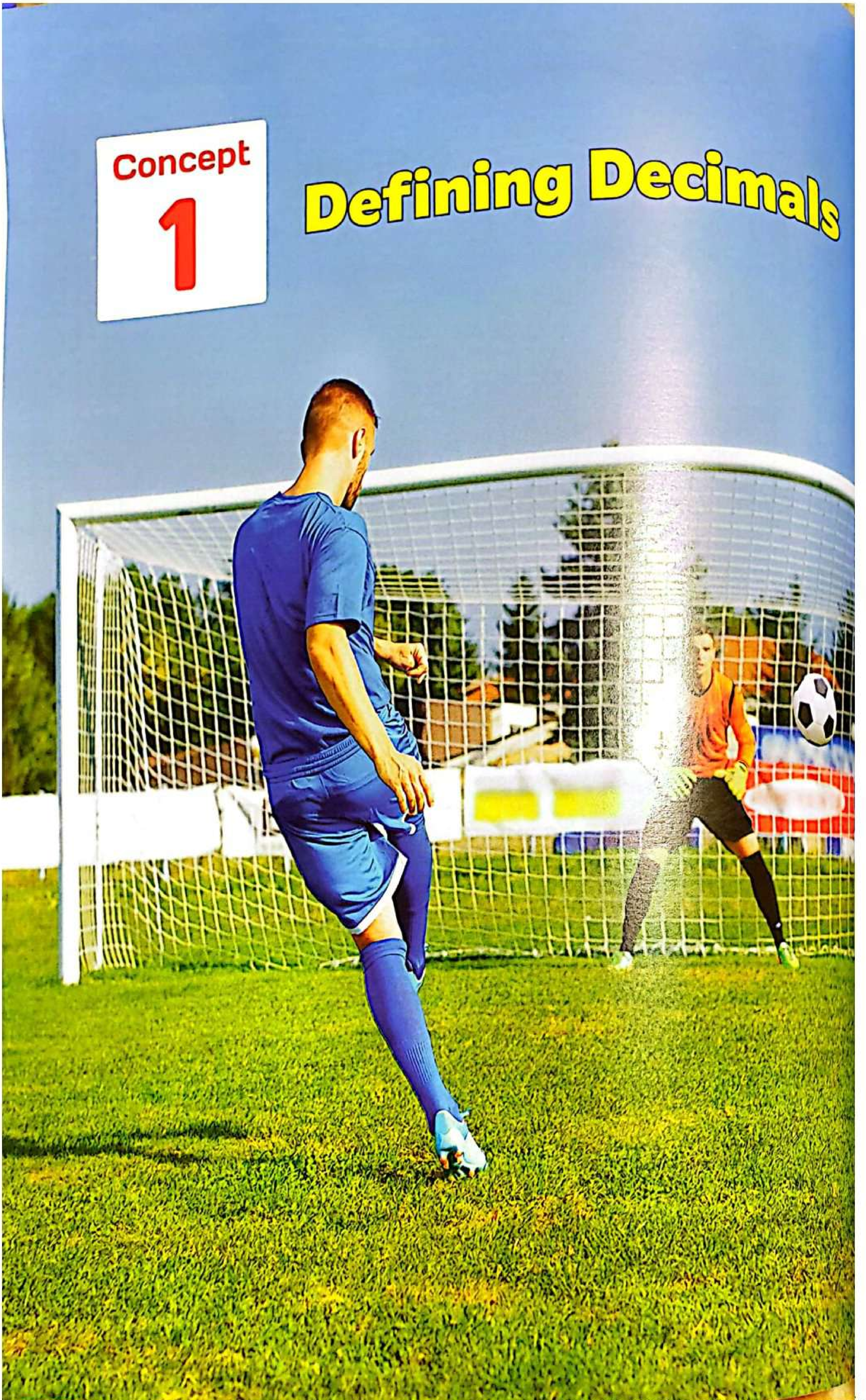


Fast Fact

Table tennis is one of the world's most popular games. It became an Olympic sport in 1988. A table tennis ball weighs between 2.4 grams and 2.53 grams. These weights are decimals.

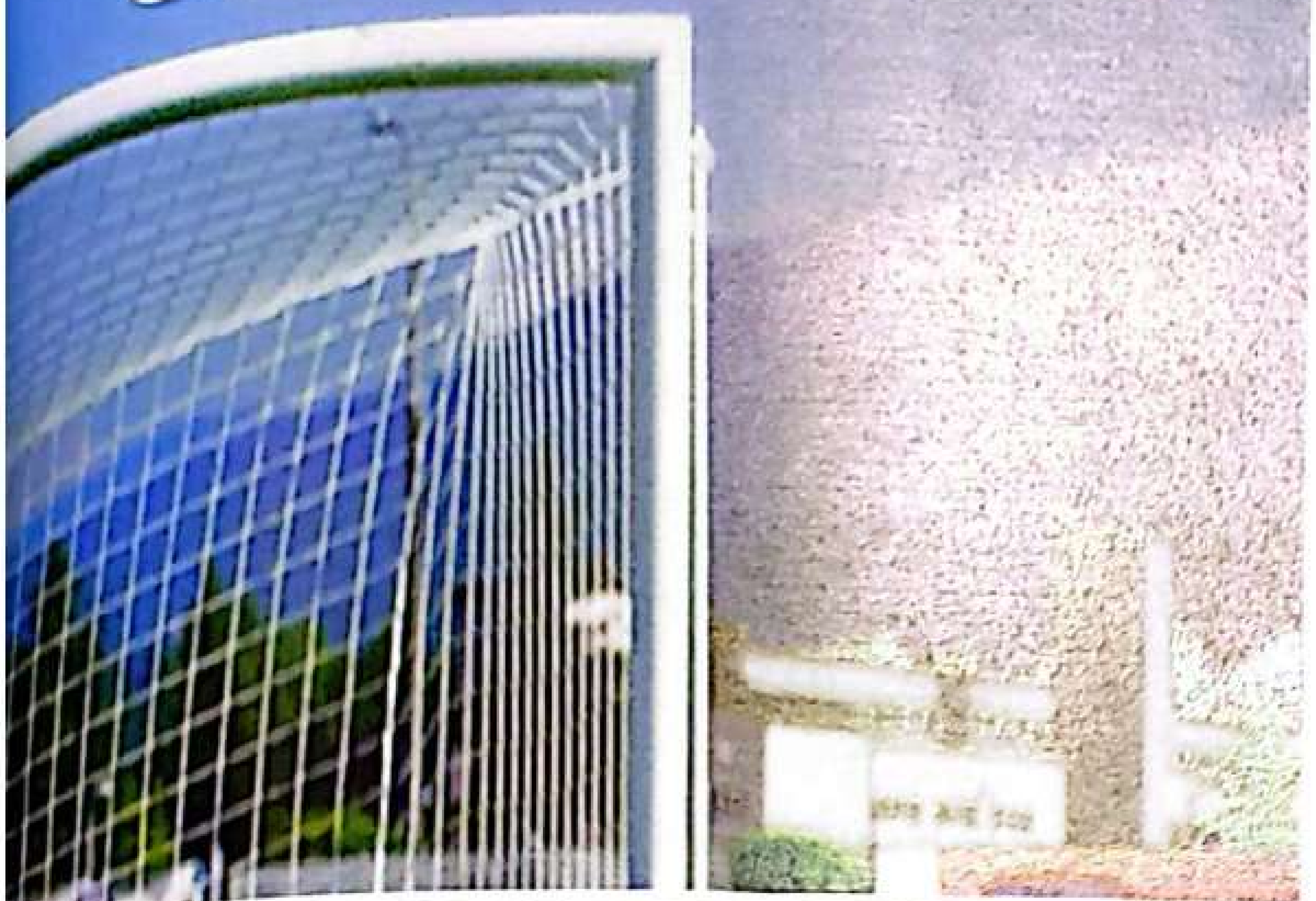
Concept 1

Defining Decimals



Fast Fact

*Each goal in a football game consists of two upright posts and joined at the top by a horizontal crossbar. The distance between the posts is **7.32** m and the distance from the lower edge of the crossbar to the ground is **2.44** m.*



Concept Overview

In concept 1:

Defining Decimals, students explore decimals for the first time. They define a decimal fraction and use models to explore decimals to the Hundredths place. Next, they review the place value system for whole numbers and apply that understanding to digits to the right of the decimal point. Students read, write, and create decimals in standard, word, and expanded form.

Lesson No.	Lesson Name	Vocabulary Terms	Learning Objectives
Lesson 1	10-1 Let's Explore Decimals	Decimal number - Decimal fraction - Decimal point - Fraction - Tenths	• Students will define decimal fractions. • Students will create visual models of Tenths.
	10-2 The Powerful 10	Hundredths - Kilogram	• Students will create visual models of Hundredths.
Lesson 2	10-3 The Value of Place	Hundredths - Place value - Tenths	• Students will name the place values of decimals to the Hundredths place. • Students will identify the value of a digit to the Hundredths place
	10-4 Decimals in Multiple Forms	Expanded form - Standard form - Word form - Unit form	• Students will write decimals to the Hundredths place in standard, word, unit, and expanded form.

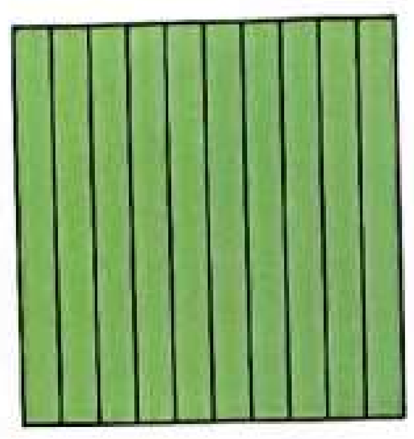
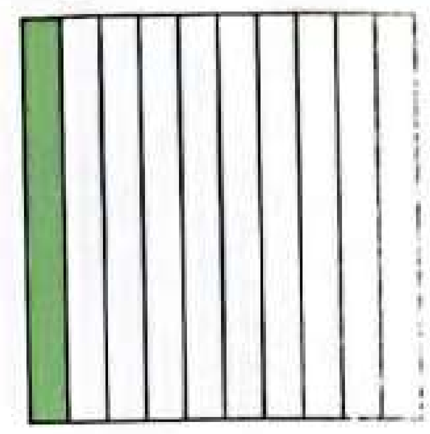
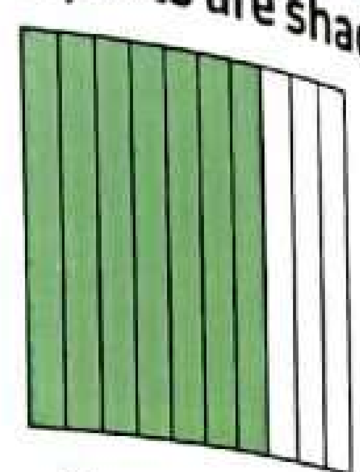
Lesson
1

10-1 Let's Explore Decimals
10-2 The Powerful 10

Learn Exploring Tenths

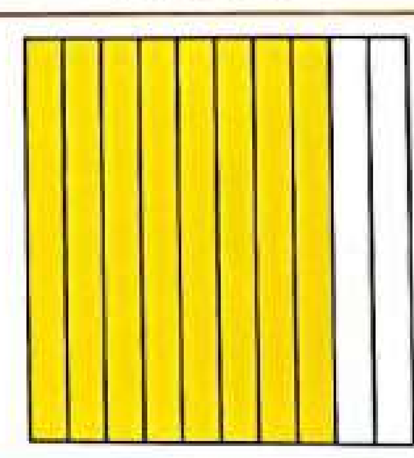
- One way to show parts of a whole is to use fractions. Another way is to use decimals.
- A **decimal** is a number with one or more digits to the right of the **decimal point**.

Look at the models below. Each model has 10 equals parts.

One whole is shaded	One part is shaded.	Seven parts are shaded.
		
1 whole	$\frac{1}{10}$ of a whole	$\frac{7}{10}$ of a whole
one	Read : One tenth	Read : Seven tenths
1.0	Write : 0.1	Write : 0.7
decimal point	decimal point	decimal point

Example

Ahmed plays in a football school team.
He trains to kick penalties.
He scored 8 goals of 10 tries.

Model	Fraction	Decimal
	Write : $\frac{8}{10}$ Read : Eight tenths	Write : 0.8 Read : Eight tenths

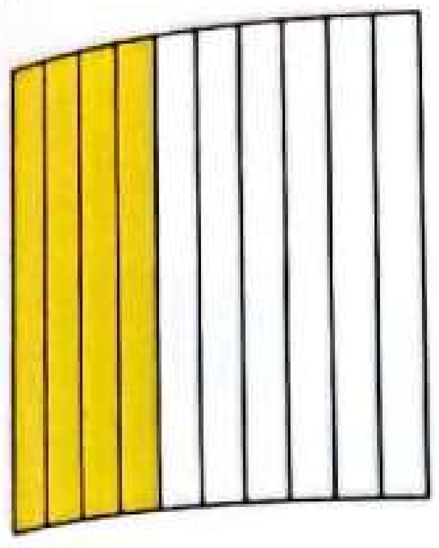
Ahmed scored $\frac{8}{10}$ or 0.8 of his tries.

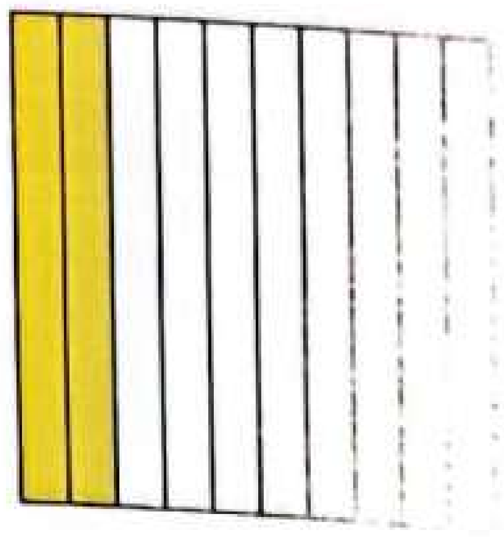
Notes for parents :

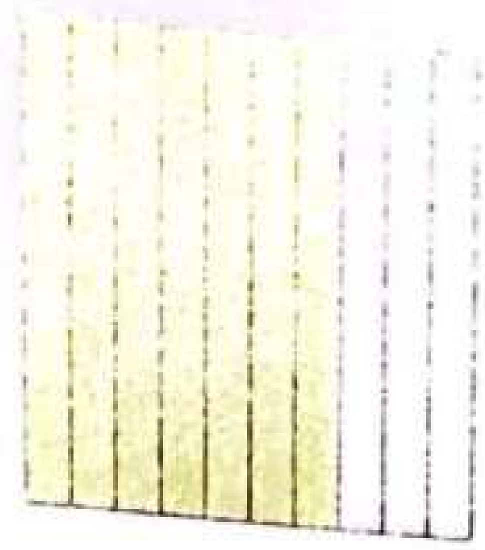
- Explain that the fraction $\frac{7}{10}$ and the decimal 0.7 name the same amount.

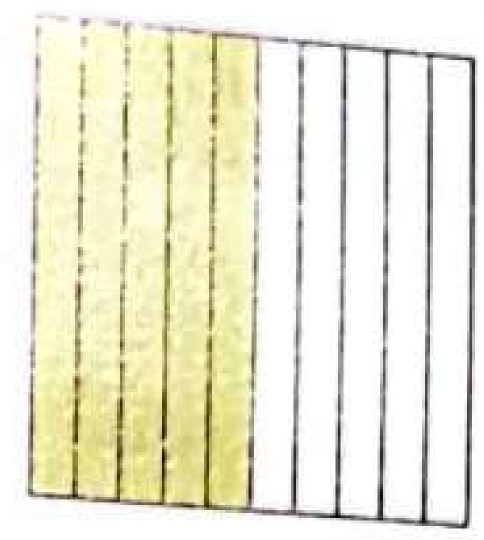
Example 1

Write the fraction and decimal for the shaded part.

a. 

b. 

c. 

d. 

Solution

a. $\frac{4}{10}$, 0.4

b. $\frac{2}{10}$, 0.2

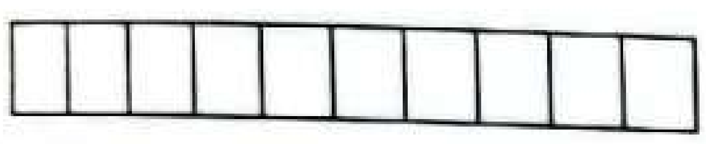
c. $\frac{7}{10}$, 0.7

d. $\frac{5}{10}$, 0.5

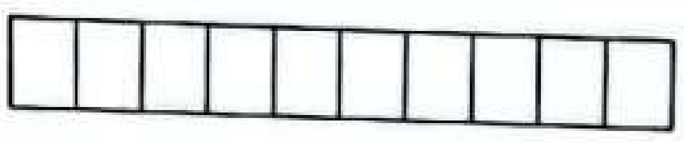
Example 2

Color to represent each of the following decimals.

a. 0.5



b. 0.3

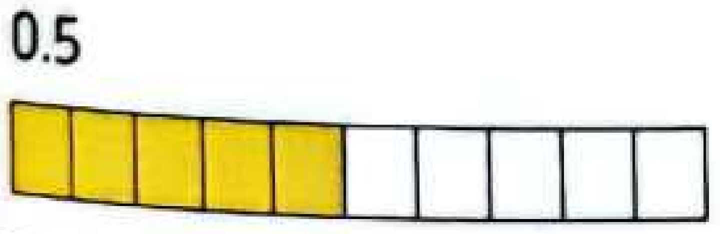


c. 0.6

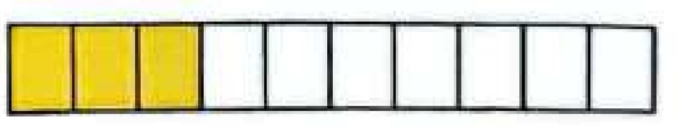
d. 0.9

Solution

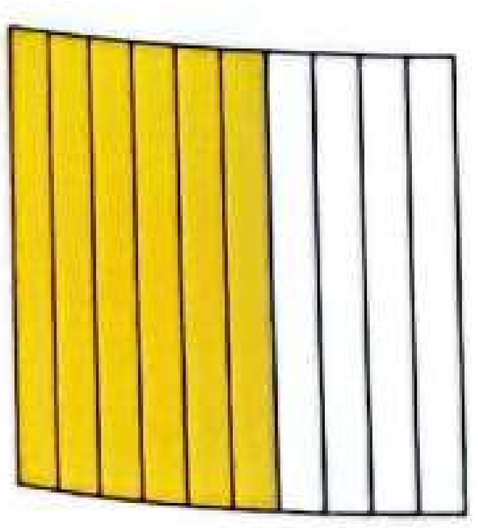
a. 0.5



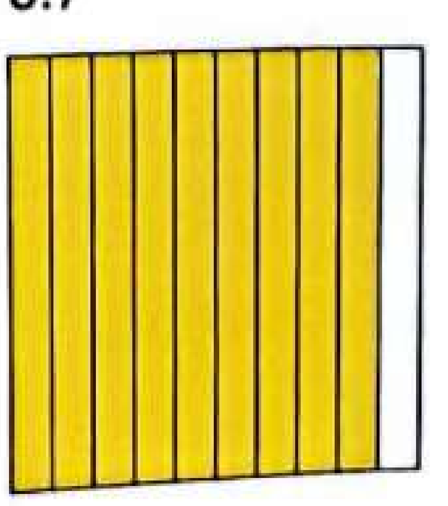
b. 0.3



c. 0.6



d. 0.9

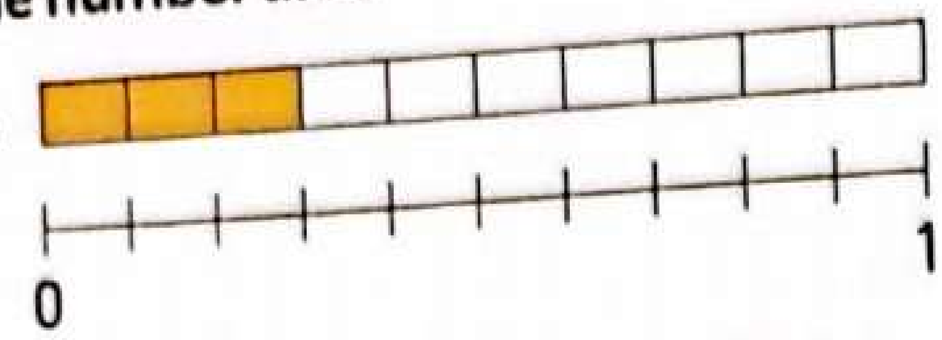


• Let your child understand that each square is divided into 10 equal rectangles. This is why the denominator of the fraction in 10.

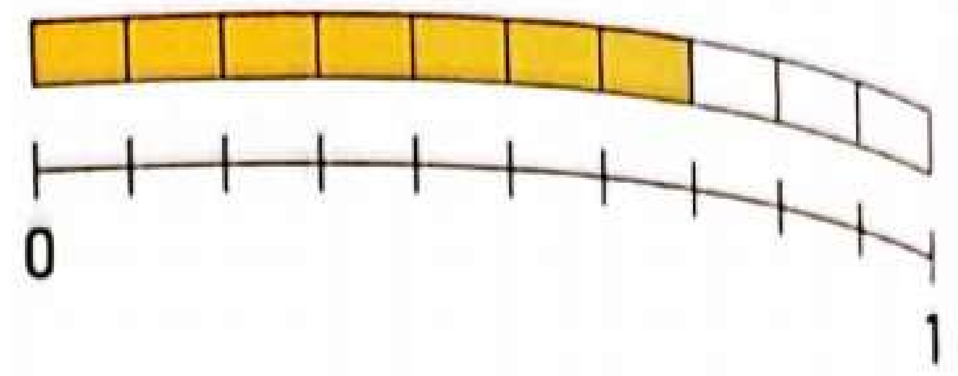
Example 3

Write the fraction and decimal which represent the shaded parts and represent it on the number line.

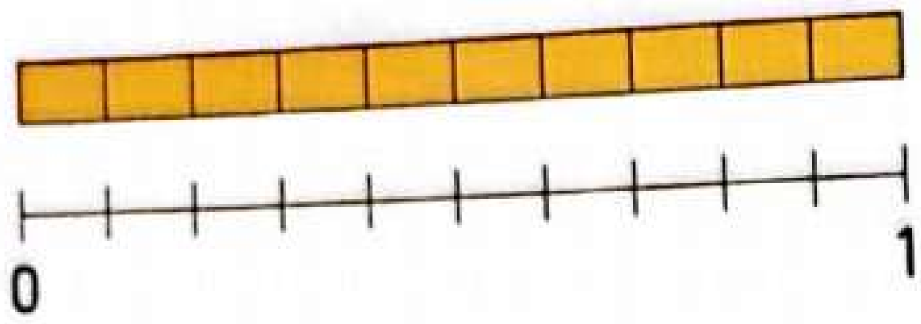
a.



b.

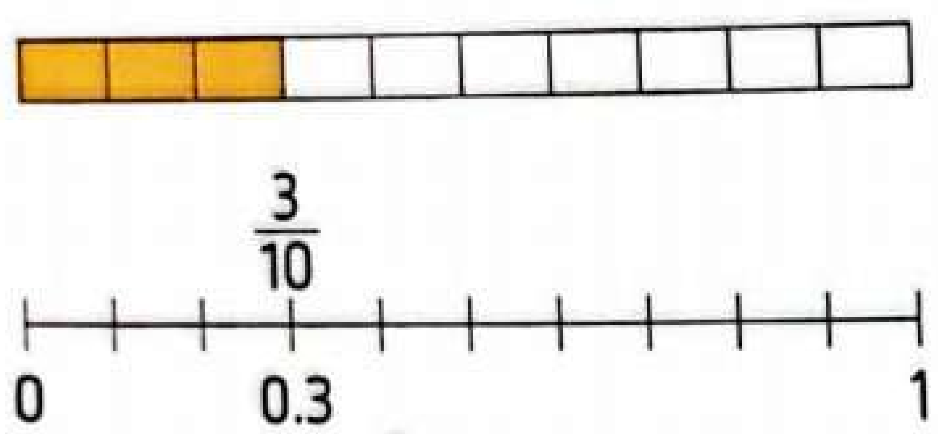


c.



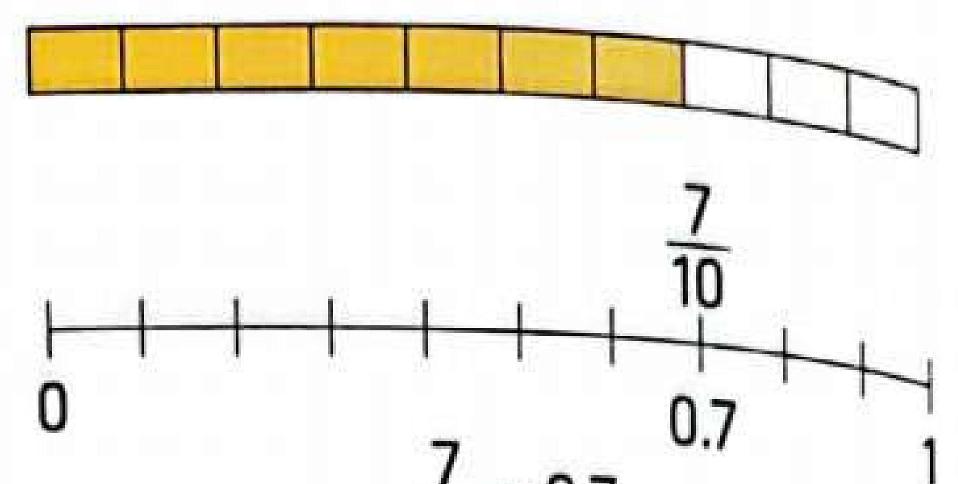
Solution

a.



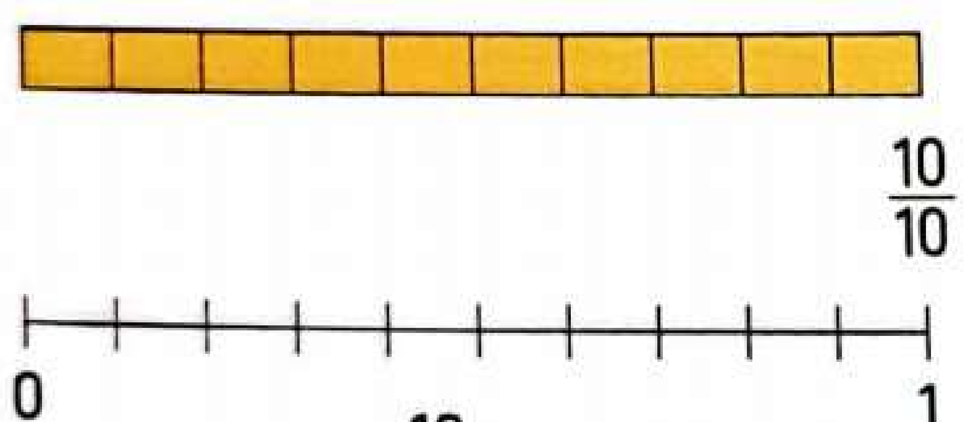
$\frac{3}{10} = 0.3$

b.



$\frac{7}{10} = 0.7$

c.



$\frac{10}{10} = 1$

Remarks

- 1 meter (m) = 10 decimeter (dm)
  so, $1\text{ dm} = \frac{1}{10}\text{ m} = 0.1\text{ m}$
- 1 decimeter (dm) = 10 centimeter (cm)
  so, $1\text{ cm} = \frac{1}{10}\text{ dm} = 0.1\text{ dm}$
- 1 centimeter (cm) = 10 millimeter (mm)
  so, $1\text{ mm} = \frac{1}{10}\text{ cm} = 0.1\text{ cm}$

Check your understanding

1. Write each fraction as a decimal.

   a. $\frac{9}{10}$ ______ b. $\frac{2}{10}$ ______ c. $\frac{8}{10}$ ______ d. $\frac{6}{10}$ ______

2. Write each decimal as a fraction.

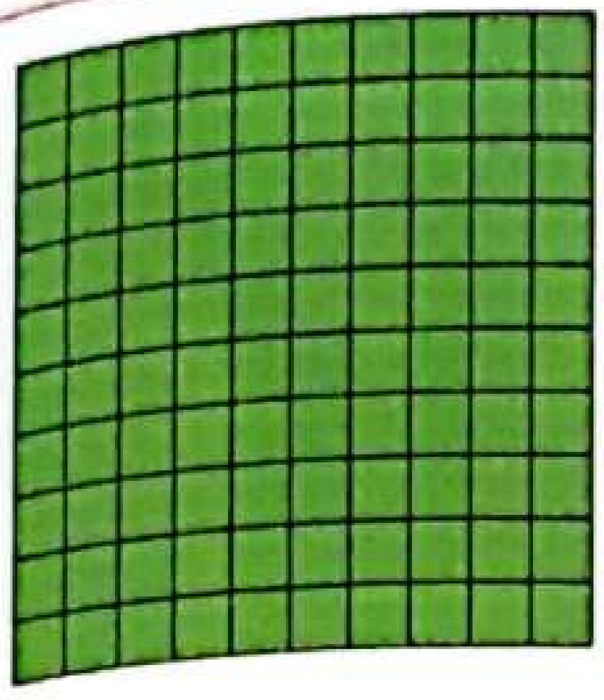
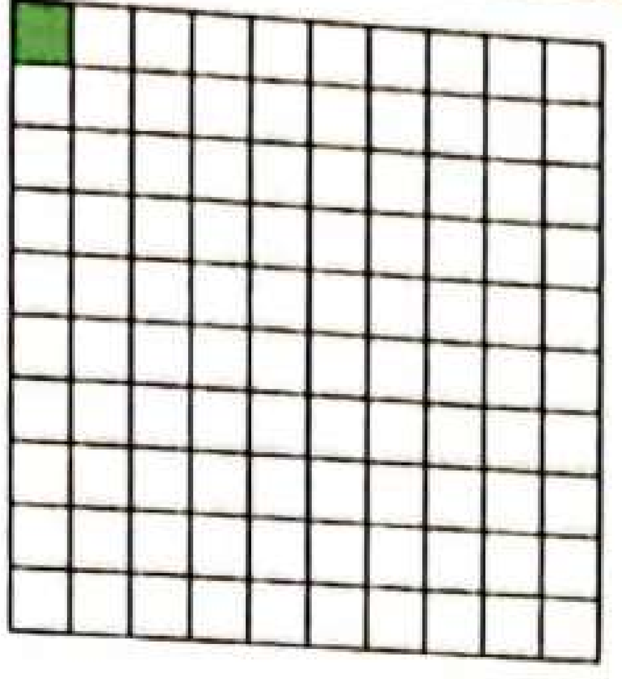
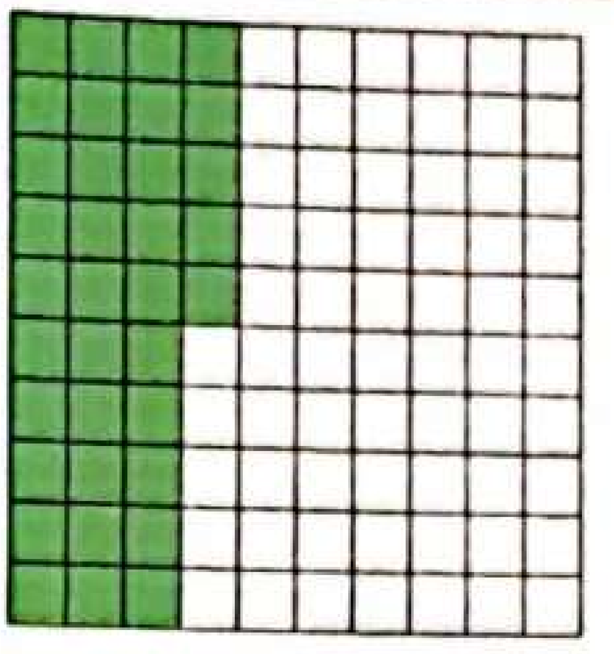
   a. 0.7 ______ b. 0.1 ______ c. 0.5 ______ d. 0.4 ______

Notes for parents :

- Select one exercise from this page and ask your student how he / she solved it.

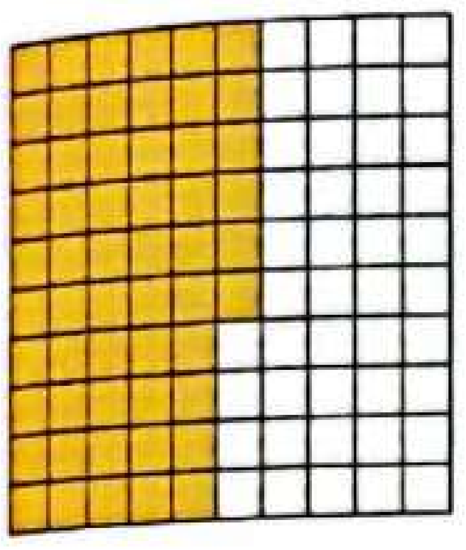
Learn Exploring Hundredth

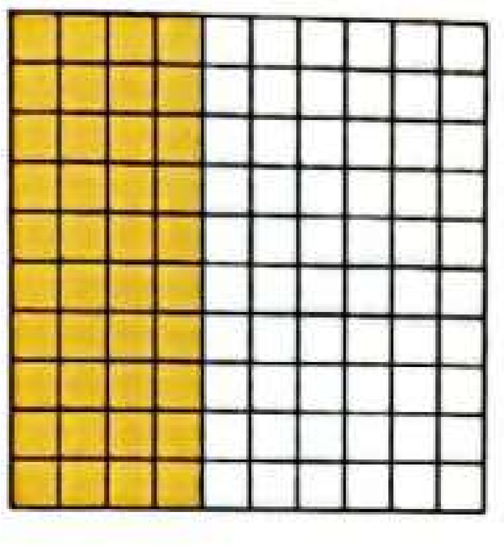
Look at the models below. Each model has 100 equal parts.

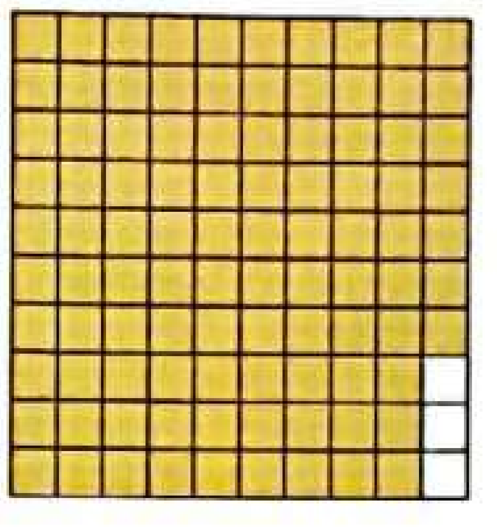
One whole is shaded	One part is shaded.	Thirty-five parts are shaded.
		
1 whole one	$\frac{1}{100}$ of a whole Write : 0.01	$\frac{35}{100}$ of a whole Write : 0.35

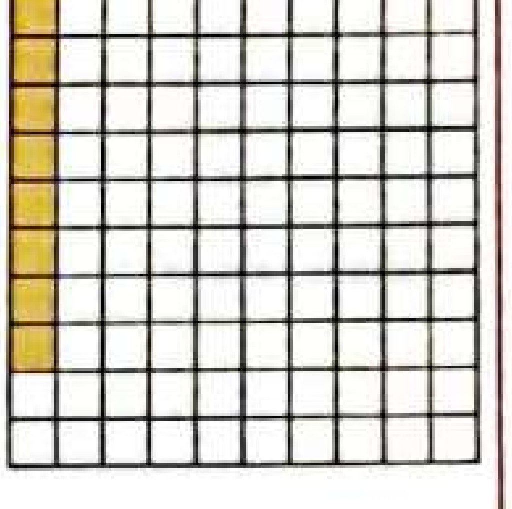
Example 4

Write the decimal to name each shaded part.

a. 

b. 

c. 

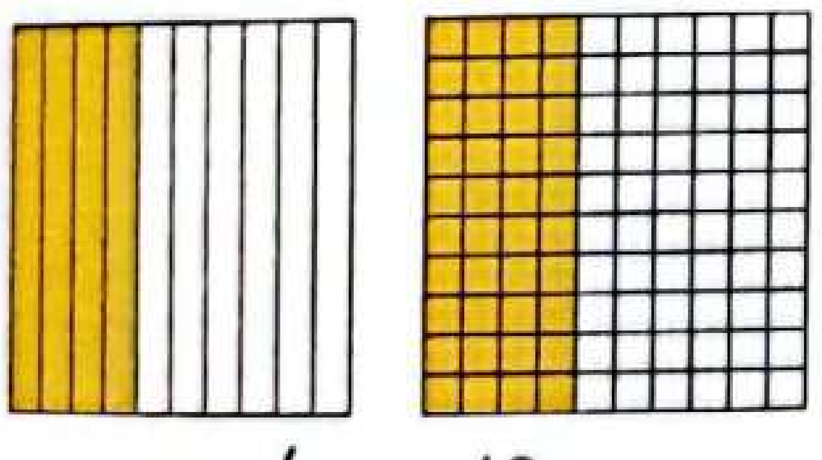
d. 

Solution

a. 0.56 b. 0.40 c. 0.97 d. 0.08

Remark

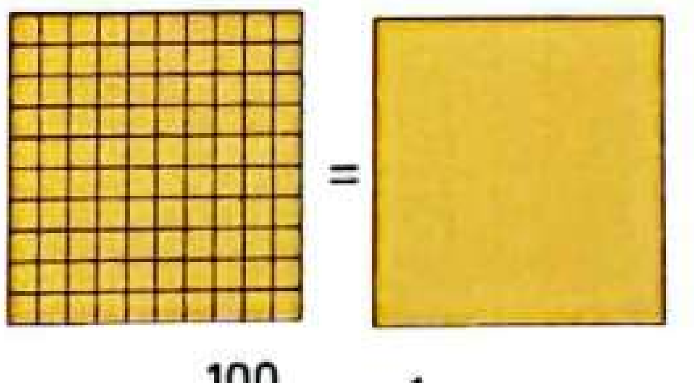
You can name the same amount in different ways.



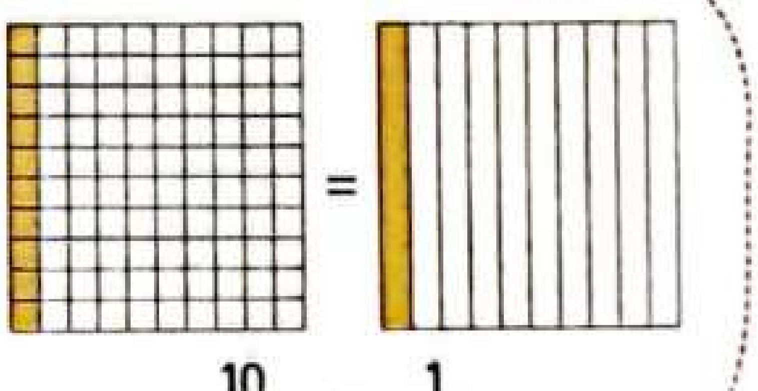
$\frac{4}{10} = \frac{40}{100}$

$0.4 = 0.40$

Math tip



$\frac{100}{100} = 1$



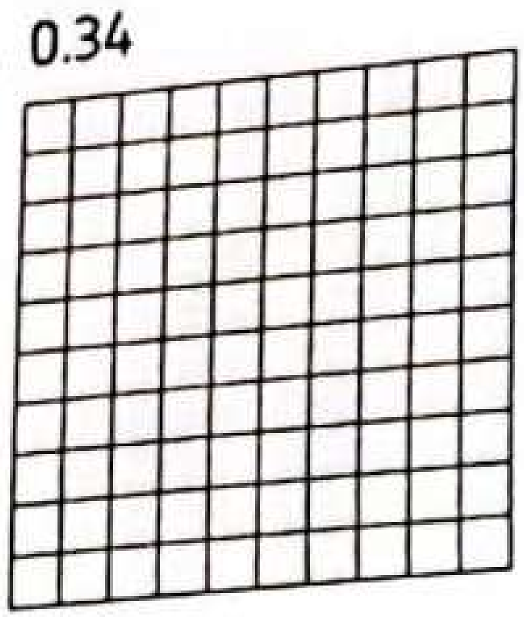
$\frac{10}{100} = \frac{1}{10}$

• Make sure your student understand that there are 100 squares on each grid. This is why the denaminator of the fraction is 100.

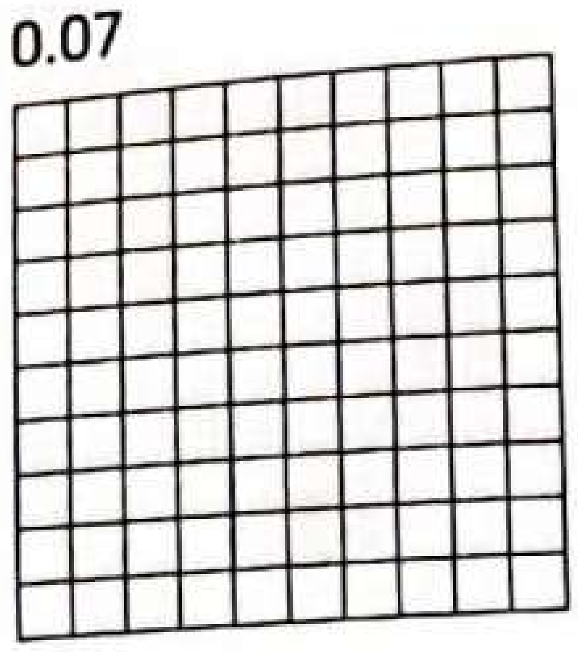
Example 5

Color each of the following to represent the following decimals.

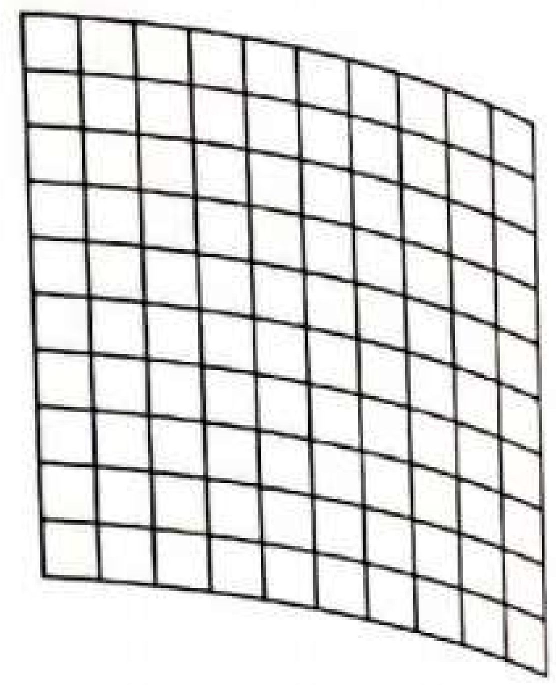
a. 0.34



b. 0.07

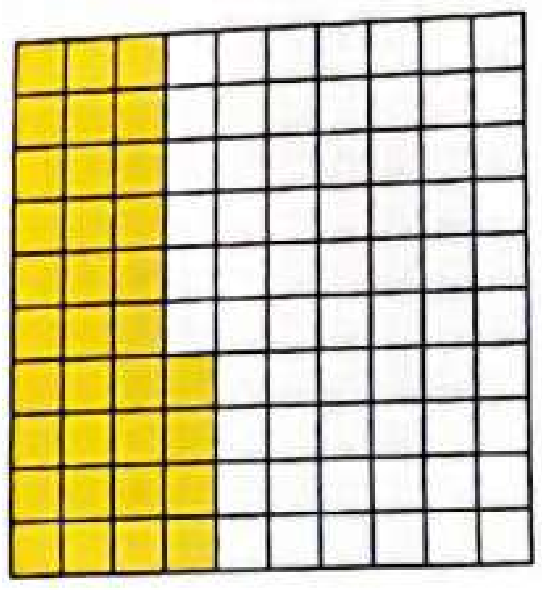


c. 0.80

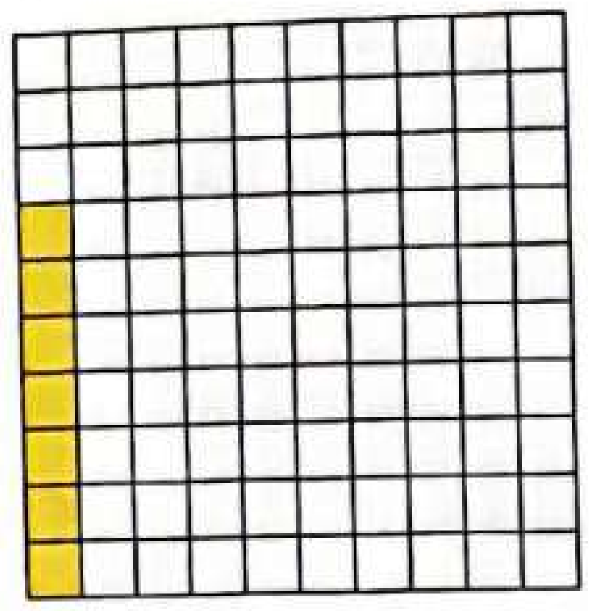


Solution

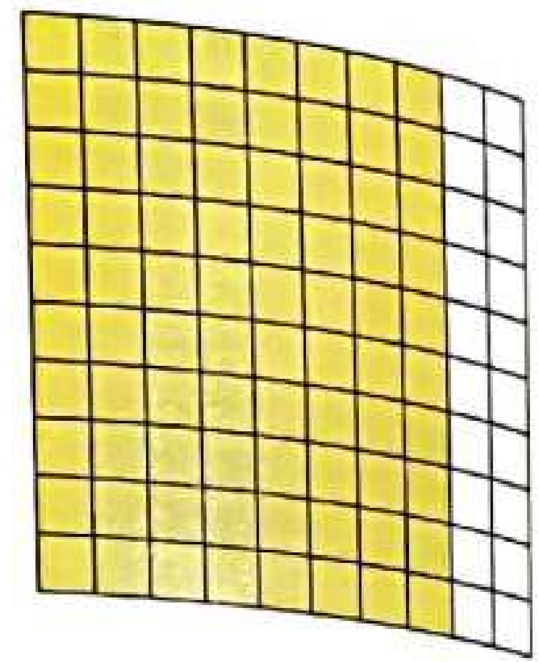
a.



b.



c.



Remark

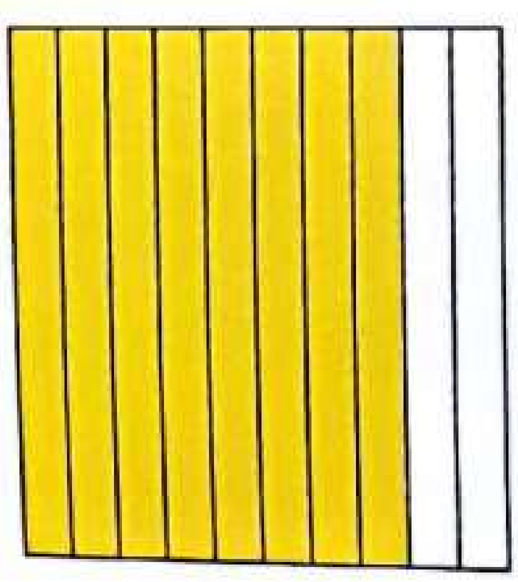
- 1 meter = 100 cm

  then , 1 cm = $\frac{1}{100}$ m = 0.01 m

Check your understanding

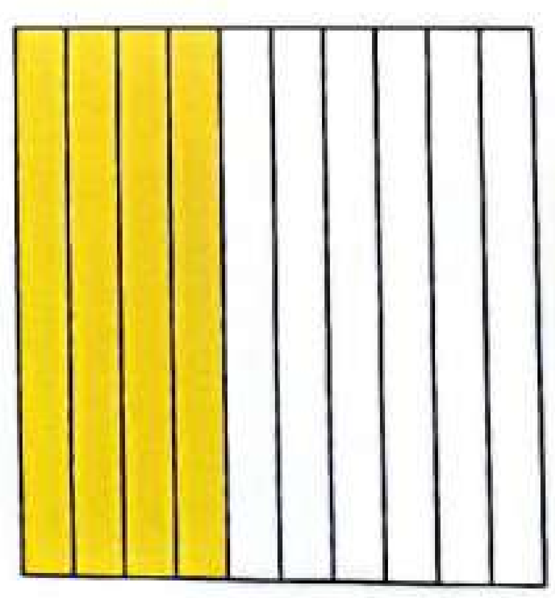
Write the fraction and the decimal to name each shaded part.

a.



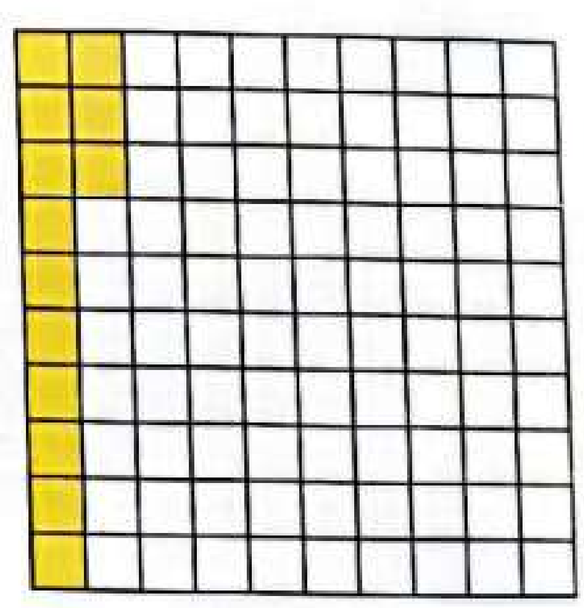
______

b.



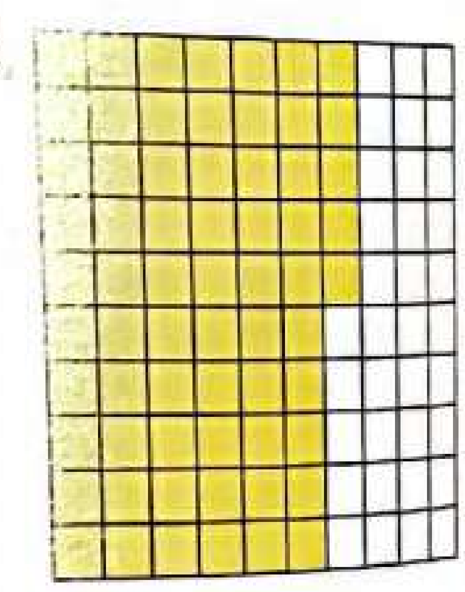
______

c.



______

d.



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Notes for parents :

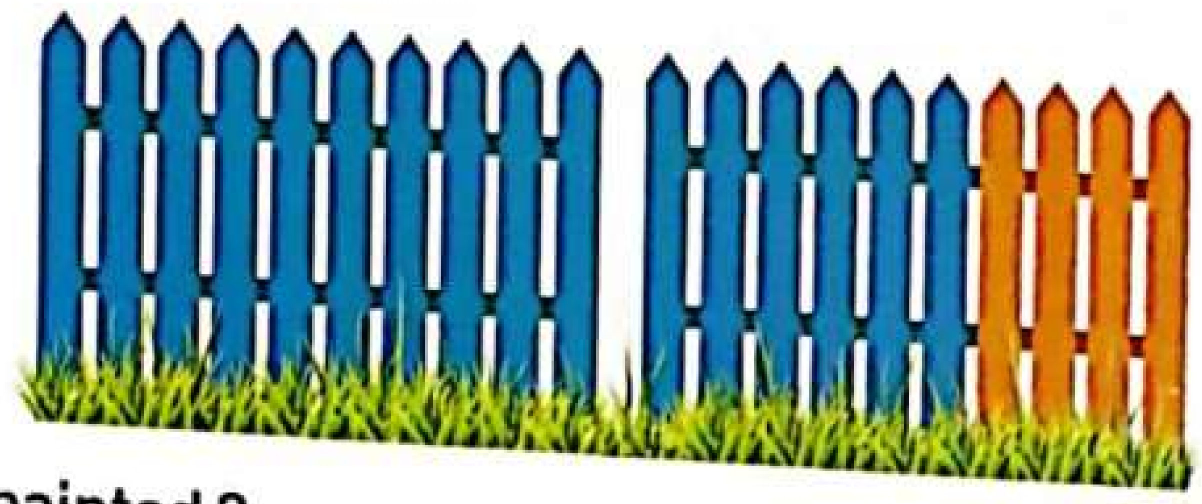
- Select one exercise from this page and ask your child how he / she solved it.

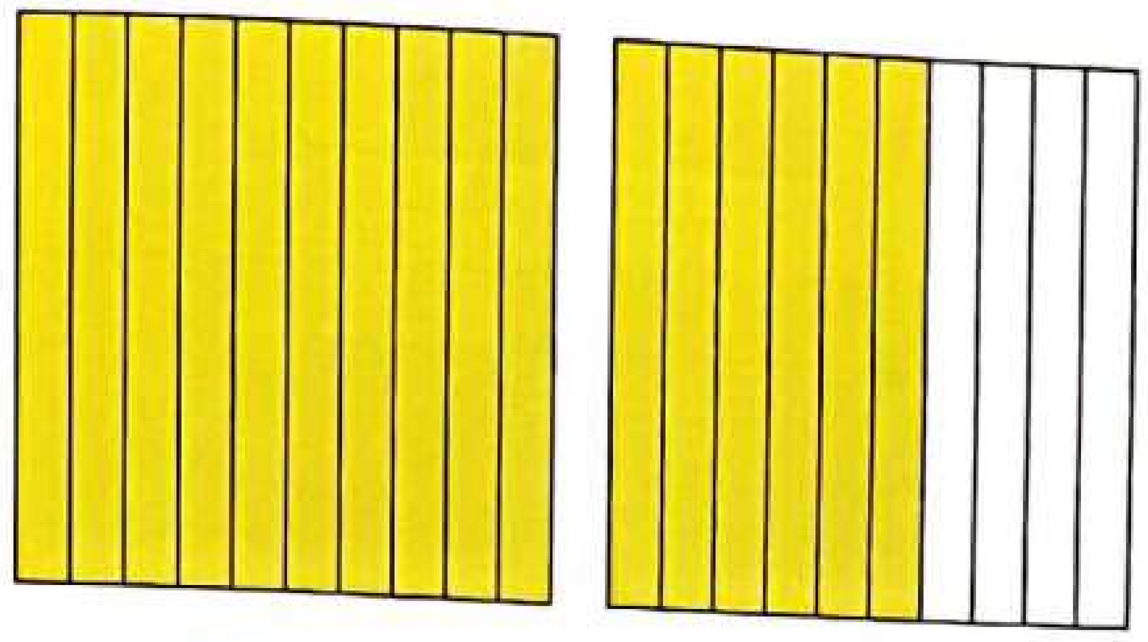
Learn Decimals greater than one

Problem

Mr. Bassem is painting the fence around his yard. There are 10 sections. Each section has 10 boards. Mr. Bassem painted 16 boards so far.

What decimal shows how many sections he has painted ?





Write : 1.6

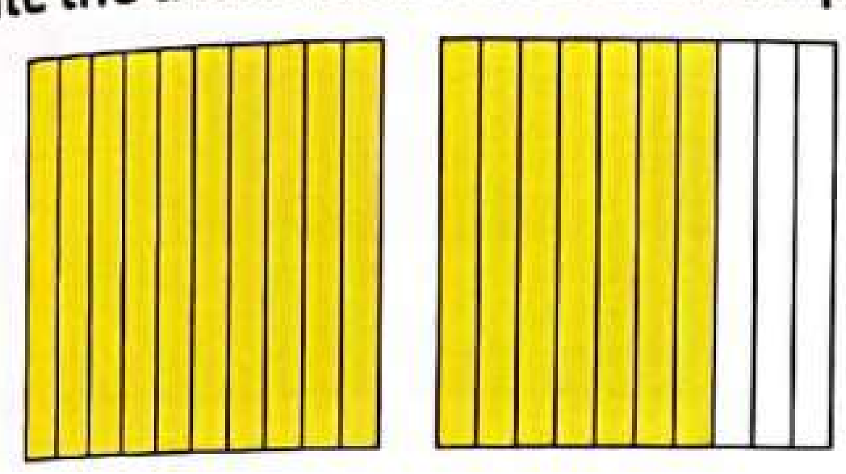
Read : One and six tenths.

So, Mr. Bassem has painted 1.6 section of fence.

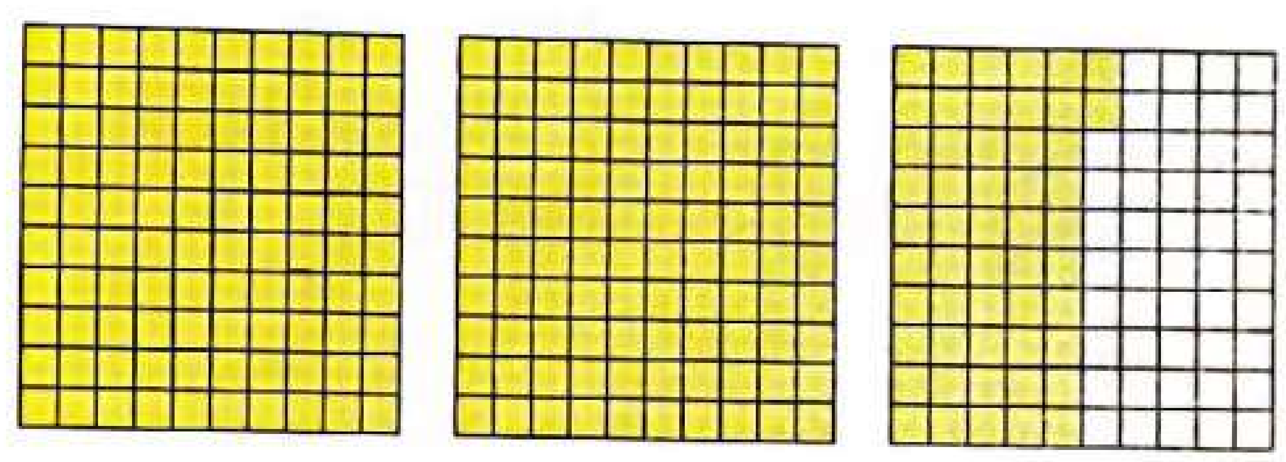
Example 6

Write the decimal for the shaded part.

a.



b.



Solution

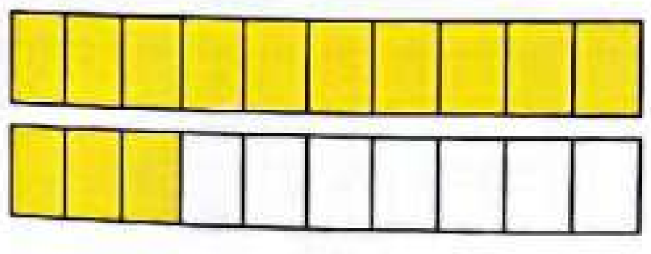
a. 1.7

b. 2.52

Check your understanding

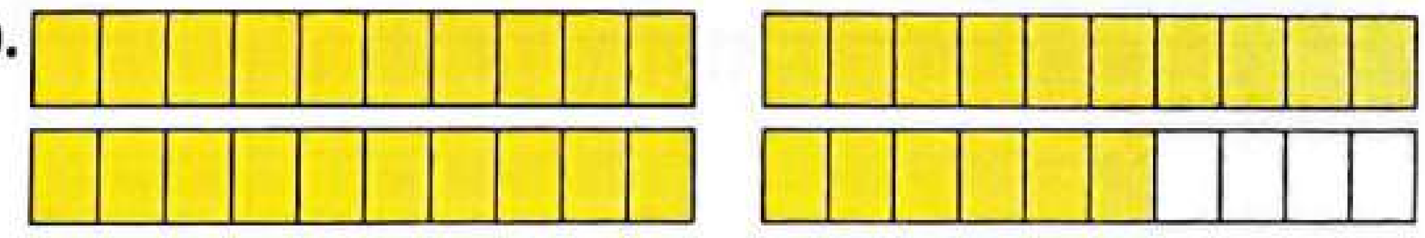
Circle the decimal that represent the shaded part.

a.



13.0 0.7 1.3

b.



4 3.6 36

• Challenge your child how he / she can write 2.7 as a fraction.

Exercise 17

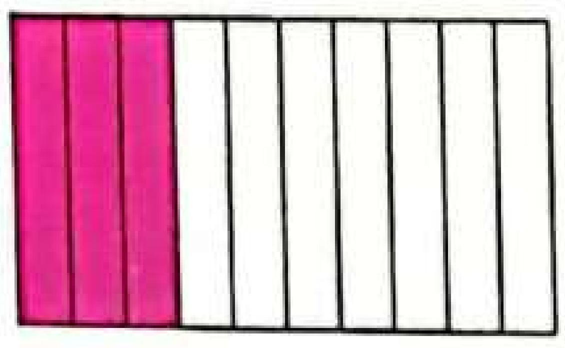
10-1 Let's Explore Decimals

10-2 The Powerful 10

● REMEMBER ● UNDERSTAND ○ APPLY ⁂ PROBLEM SOLVING 📖 From the school book

1. Write the decimal to name each shaded part.

a.



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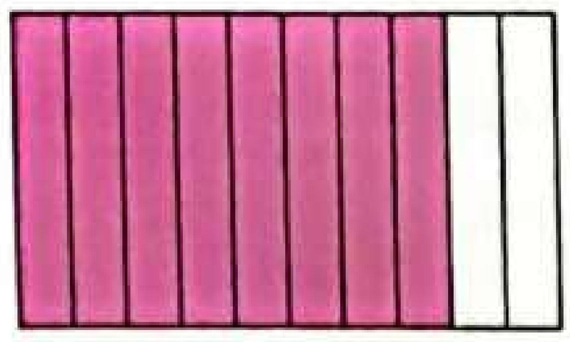
b.



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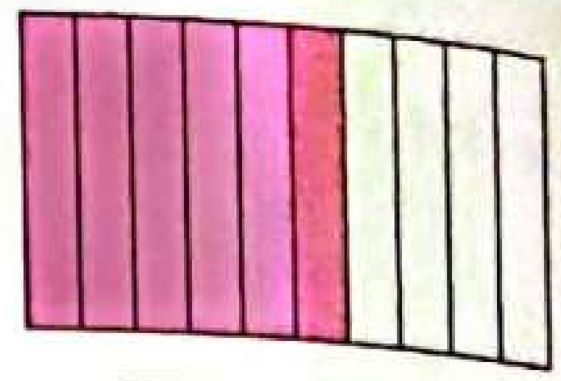
c.



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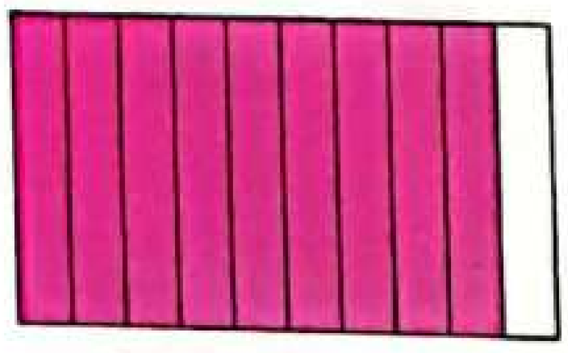
d.



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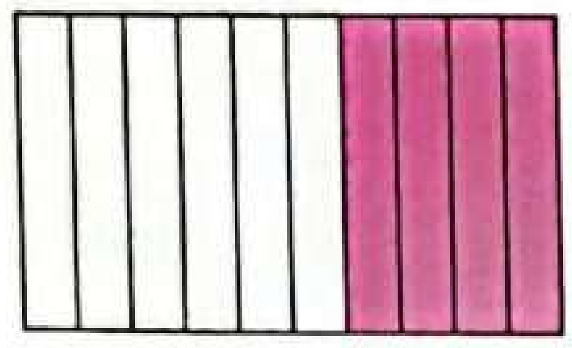
e.



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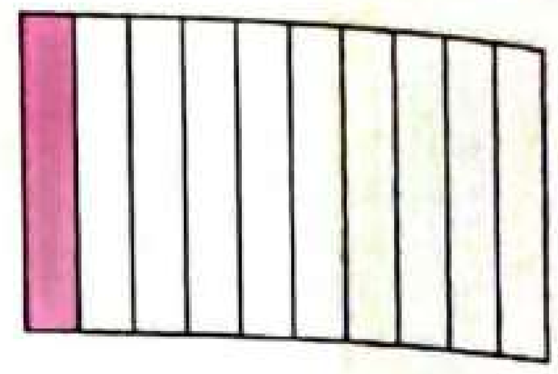
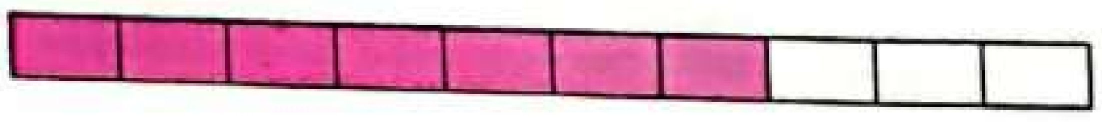
f.



______

g.



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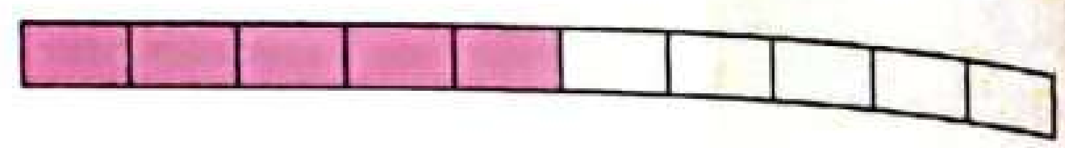
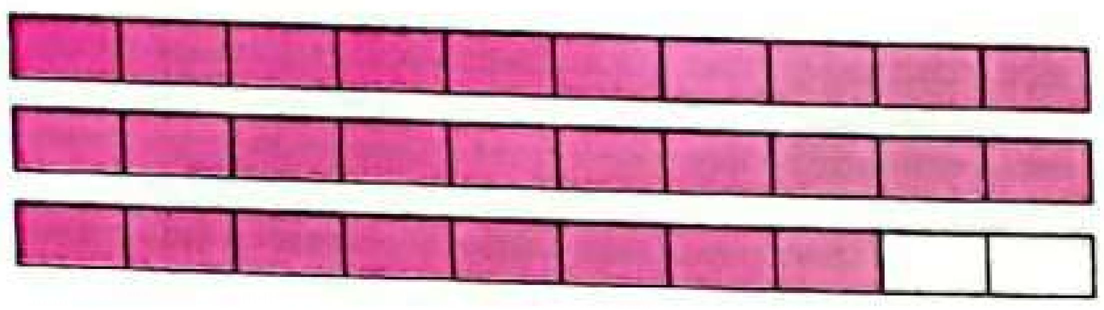
h.



______

i.



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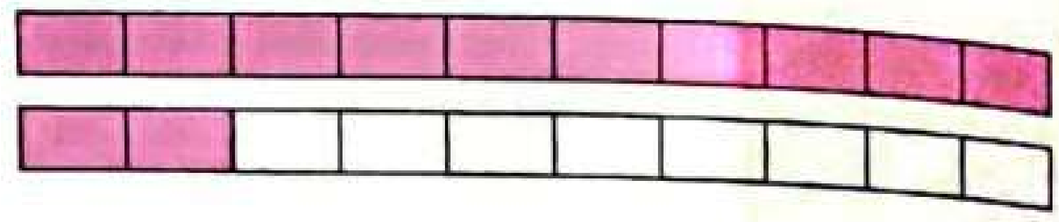
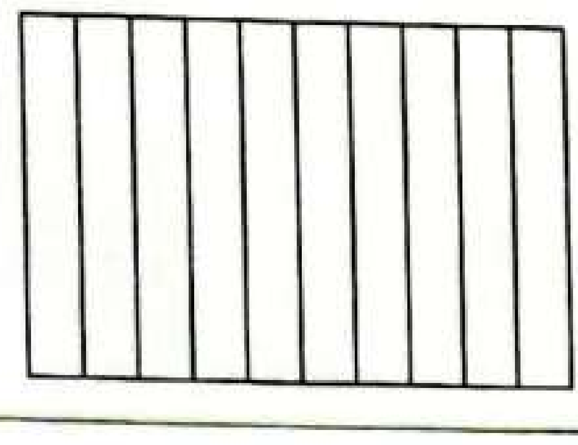
j.



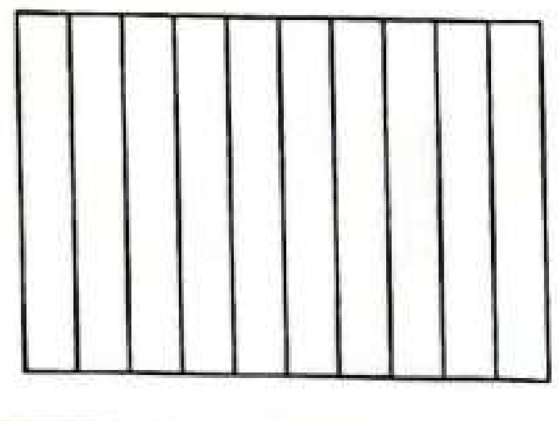
______

2. Shade in the model to represent the decimal.

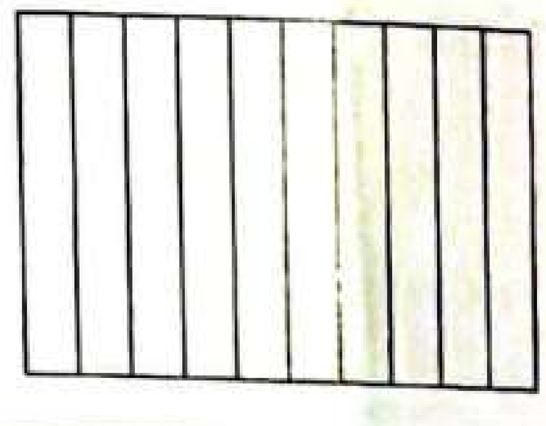
a. 📖 0.2



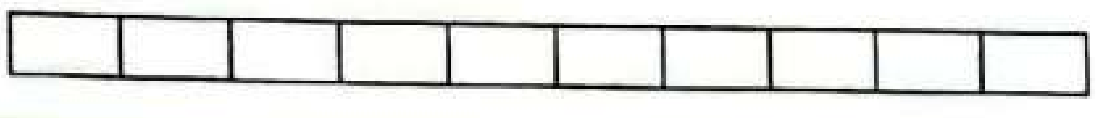
b. 📖 0.6



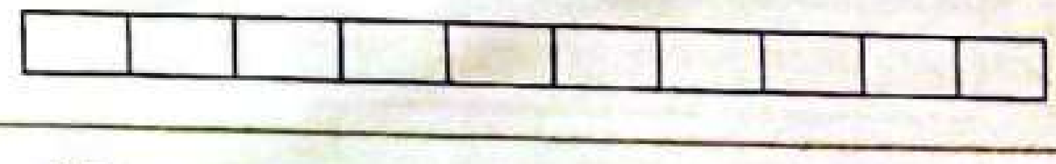
c. 📖 0.9



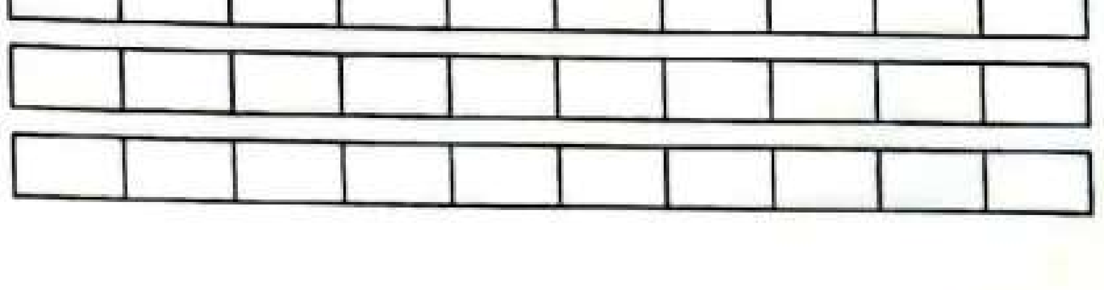
d. 📖 0.7



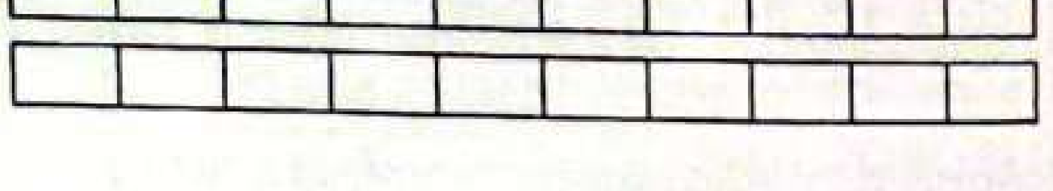
e. 📖 0.5



f. 2.4

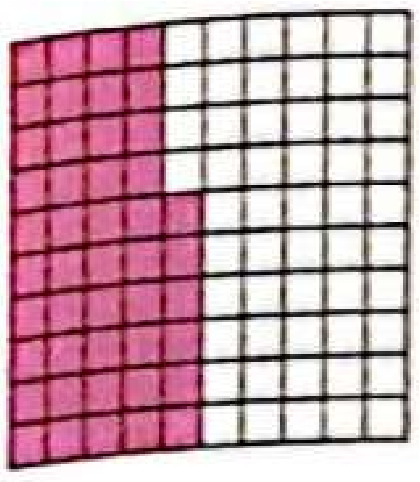


g. 1.7



3. Record what decimal is shown.

a.



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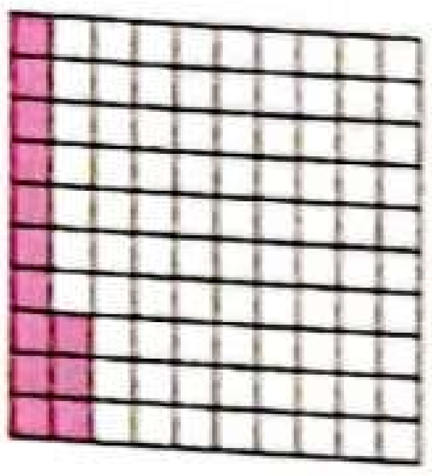
b.



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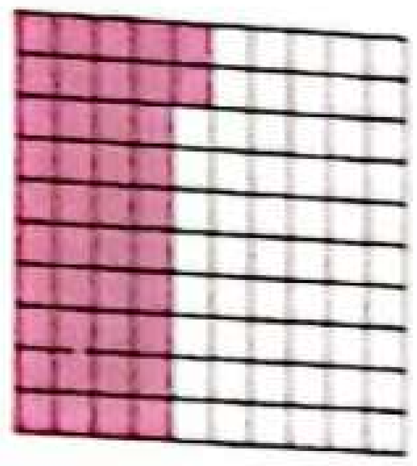
c.



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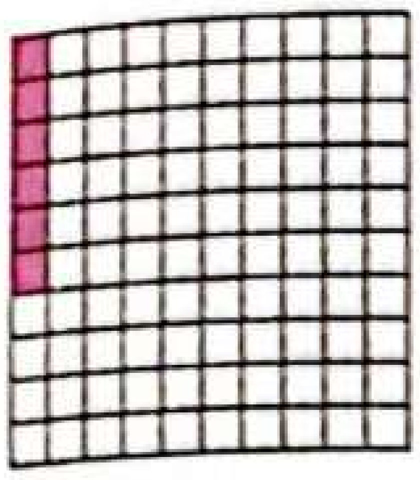
d.



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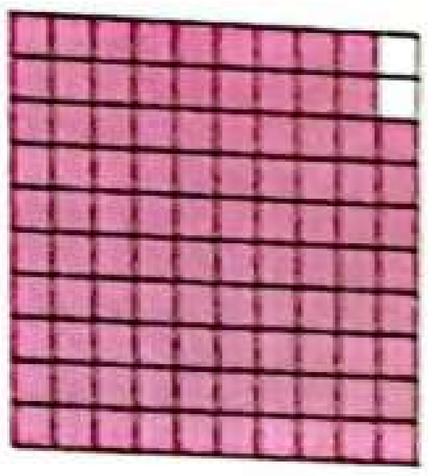
e.



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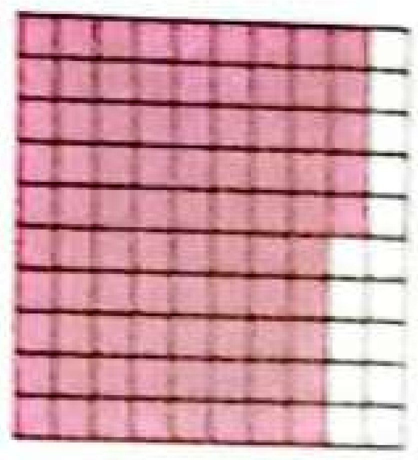
f.



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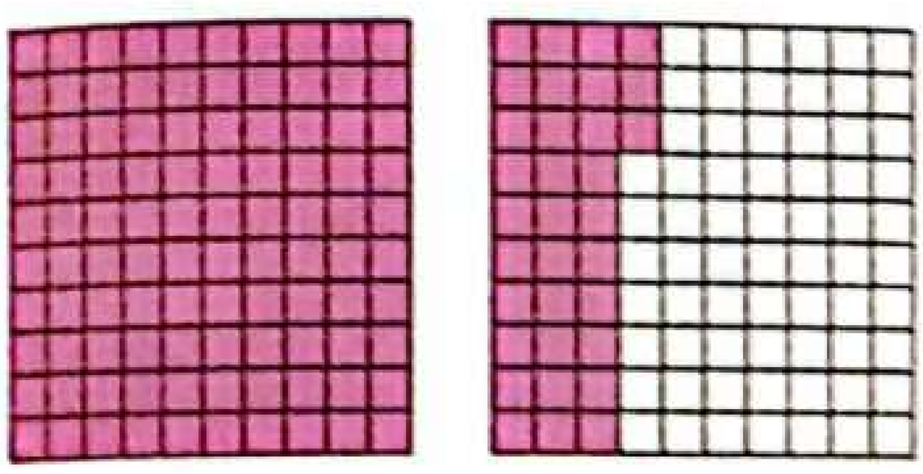
g.



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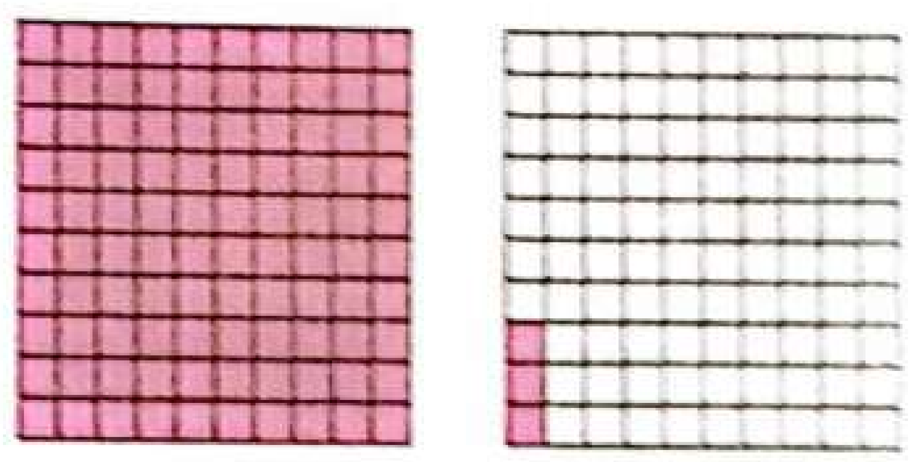
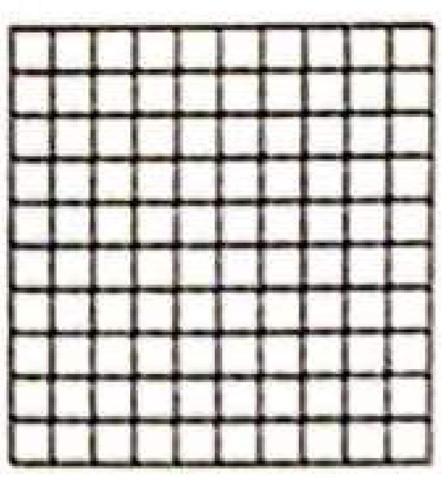
h.



______

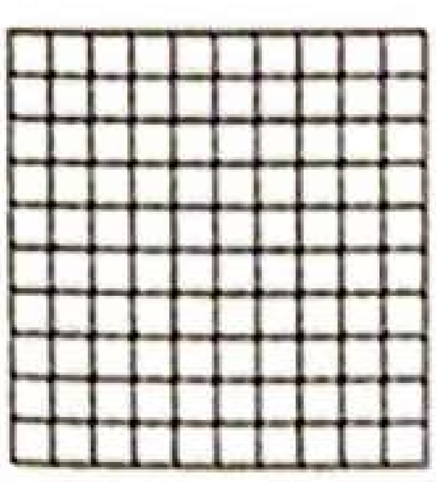
4. Shade in the grids to show the decimal stated.

a. 0.1



b. 0.06

c. 0.46



d. 0.72

e. 1.3

f. 1.28

5. Circle the decimal that represent the shaded part.

a. 2.0 0.8 0.2

b. 10 1.0 0.10

c. 1.9 1.1 0.11

d. 16.0 0.4 1.6

e. 3.5 5.3 0.5

f. 2.3 0.32 0.23

g. 0.5 5.5 5.0

6. Record what fraction and decimal are shown.

a. 0 ______ 1

b. 0 ______ 1

c. 0 ______ 1

d. 0 ______ 1

e. 0 ______ 1

f. 0 ______ 1

7. Write each of the following as a decimal.

a. $\frac{7}{10}$ .... b. $\frac{5}{10}$ .... c. $\frac{3}{10}$ .... d. $\frac{2}{10}$ ....

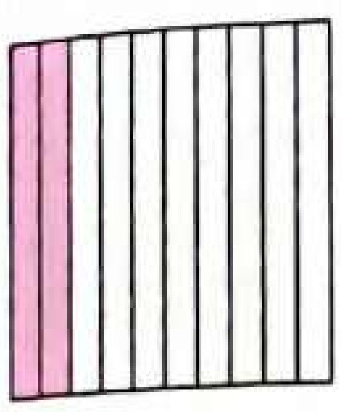
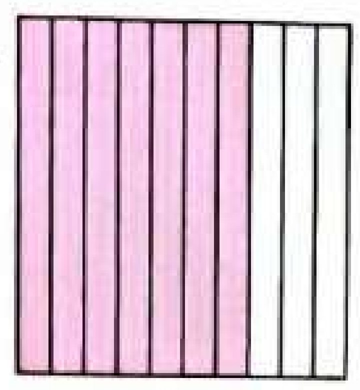
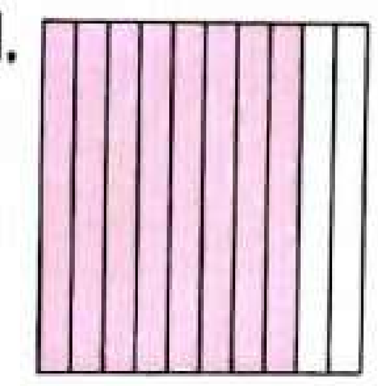
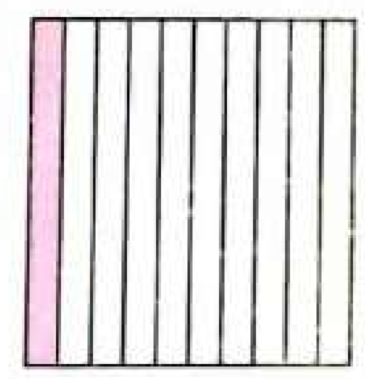
e. $\frac{73}{100}$ .... f. $\frac{15}{100}$ .... g. $\frac{7}{100}$ .... h. $\frac{3}{100}$ ....

8. Write each of the following as a fraction.

a. 0.2 .... b. 0.6 .... c. 0.8 .... d. 0.1 ....

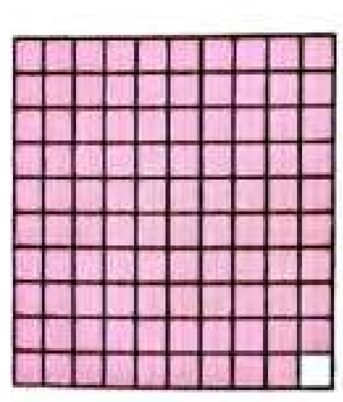
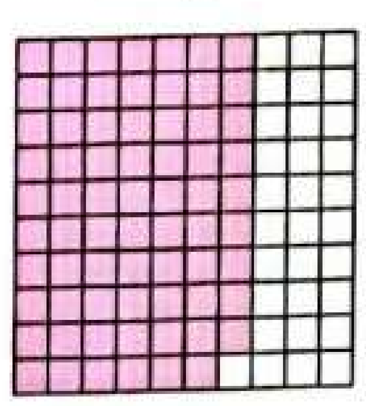
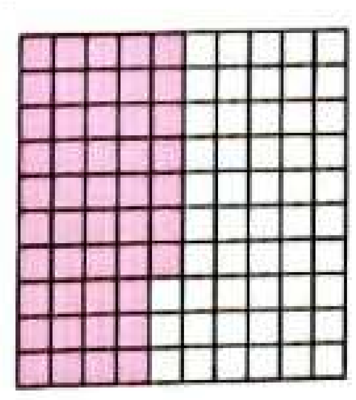
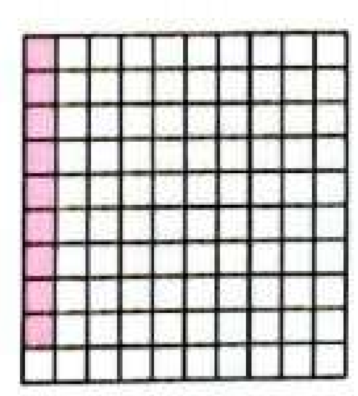
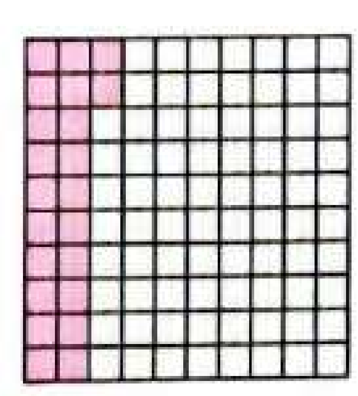
e. 0.23 .... f. 0.69 .... g. 0.08 .... h. 0.02 ....

9. Join each decimal to its representing shape.

a. 
b.
c. 
d. 
e. 

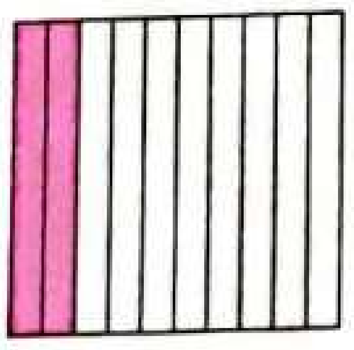
0.8 0.7 0.1 0.2 0.5

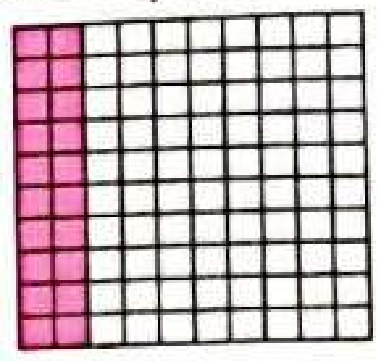
10. Join each decimal to its representing shape.

a. 
b. 
c. 
d. 
e. 

0.22 0.09 0.99 0.47 0.69

11. Put (✓) to the correct statement and (X) to the incorrect statement.

a. 0.3 is represented with the shaded part in  [   ]

b. 0.2 is represented with the shaded part in  [   ]

c. $0.10 = 0.1$ [   ]

d. $0.08 = 0.8$ [   ]

e. $1 = 0.1$ [   ]

f. $\frac{3}{100} = 0.3$ [   ]

g. $1\,dm = 0.1\,m$ [   ]

h. $1\,cm = 0.01\,dm$ [   ]

12. Write the result of each of the following as a decimal.

a. $\frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} =$ ____________

b. $\frac{3}{10} + \frac{4}{10} =$ ____________

c. $\frac{5}{10} + \frac{1}{10} + \frac{3}{10} =$ ____________

d. $\frac{8}{10} - \frac{3}{10} =$ ____________

e. $\frac{15}{10} - \frac{11}{10} =$ ____________

f. $\frac{23}{100} + \frac{41}{100} =$ ____________

g. $\frac{6}{100} + \frac{70}{100} =$ ____________

h. $\frac{1}{100} + \frac{1}{100} + \frac{1}{100} =$ ____________

i. $\frac{35}{100} - \frac{14}{100} =$ ____________

j. $\frac{99}{100} - \frac{50}{100} =$ ____________

13. **Write about math.** How is 0.1 (one-tenth) similar to 1 divided by 10 ?

____

____

14. There are 10 beanbags.

Five of the beanbags are red.

What part of the group of beanbags are red ?

(Write fraction and decimal)

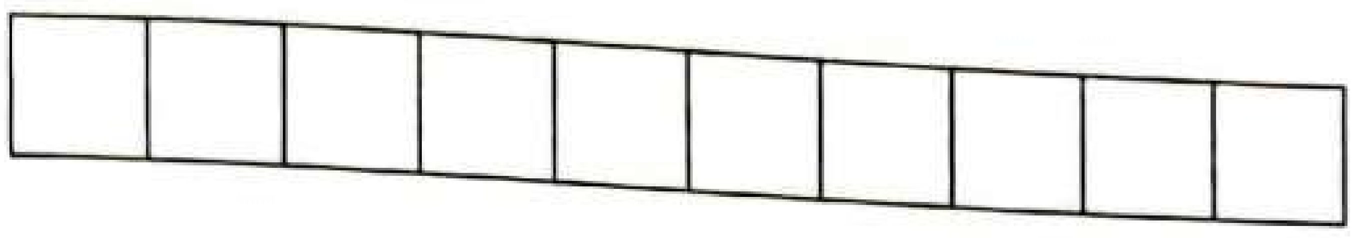
____

____

15. Mina lives at $\frac{9}{10}$ of a kilometer far from Sarah. Write the distance as a decimal.

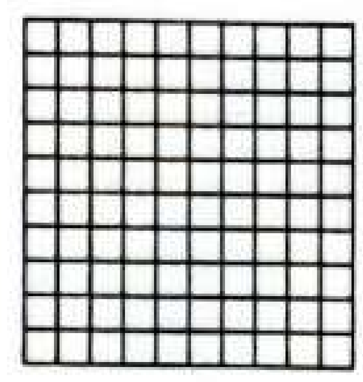
____

16. Hossam had a 1-meter piece of fabric. Of this piece, 0.2 meter had flowers on it, 0.6 meter was plain blue, and the rest had stars. Color in the strip of Hossam's fabric based on the description.



What decimal of Hossam's strip had stars? __________

17. Bassem had a quilt that his mother bought for him. 0.35 of it was colored blue. 0.4 of it was red. The rest was yellow. Color in the quilt to match the decimals described.

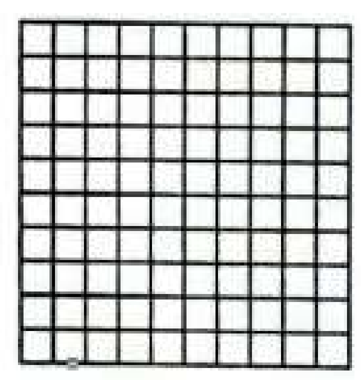


What decimal of Bassem's quilt was yellow? __________

18. Aisha was coloring in a Hundredths grid. She colored in 30 squares or 0.30. Adel walked by and said, "Oh, I see you colored in 3 Tenths".

Is Adel correct? How do you know?

Color in the grid to check your thinking.



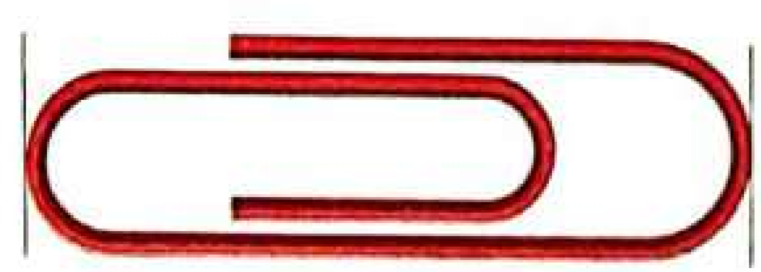
Aisha

Adel

19. There are 100 centimeters in 1 meter. Use your ruler, then measure the paper clip in centimeters. Then write the length as a fraction and as a decimal of a meter.

____

____



Challenge

20. Is 0.70 greater, less than, or equal to 0.7? Explain.

____

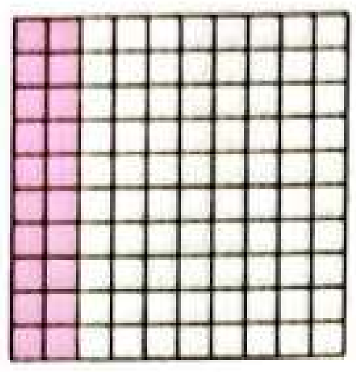
21. **What's the error?** Aly says 0.20 is equal to $\frac{2}{100}$. Describe his error.

____

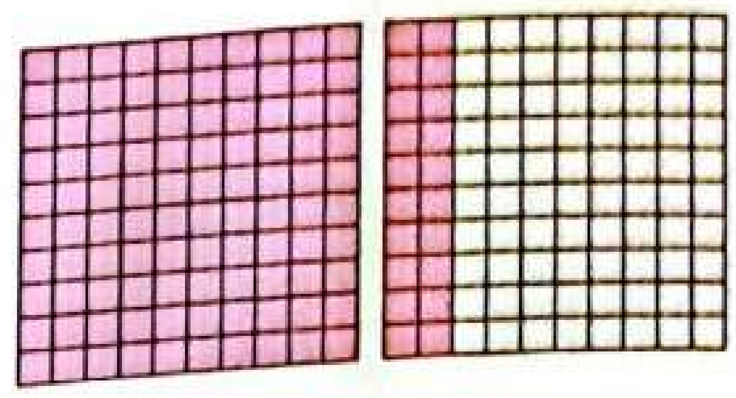
Multiple Choice Questions

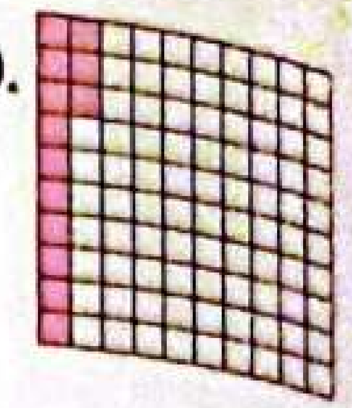
Choose the correct answer.

1. Which of the following represents 0.12 ?

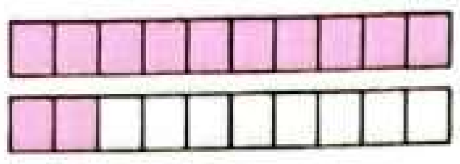
A. 

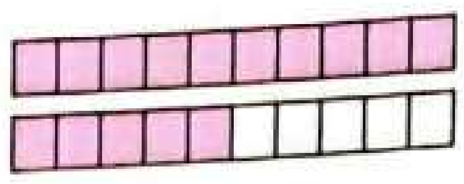
B.

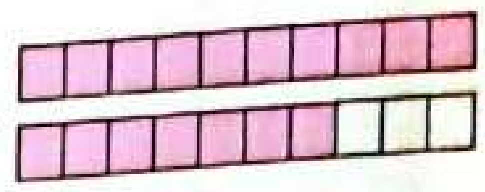
C. 

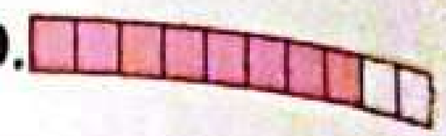
D. 

2. Which of the following represents 1.2 ?

A. 

B. 

C. 

D. 

3. $\frac{2}{10}$ = ______

A. 1.2 B. 2.1

C. 0.2 D. 0.22

4. 0.7 = ______

A. $\frac{10}{7}$ B. $\frac{7}{10}$

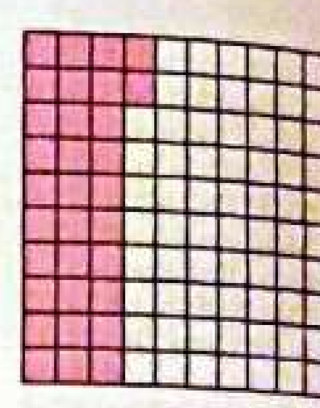
C. $\frac{100}{7}$ D. $\frac{7}{100}$

5. The shaded part in the figure represent ______

A. 5 B. 0.05

C. 50 D. 0.50

6. The shaded part in the figure represent ______



A. 0.30 B. 0.32

C. 3.2 D. 32

7. Which shows the fraction for 0.9 ?

A. $\frac{0}{9}$ B. $\frac{1}{9}$

C. $\frac{9}{10}$ D. $\frac{10}{9}$

8. Which of the following is equal to 1 ?

A. 0.1 B. 1.1

C. $\frac{10}{10}$ D. $\frac{10}{100}$

9. Which decimal shows eight hundredths ?

A. 8.00 B. 0.08 C. 0.80 D. 800

Lesson 2

10-3 The Value of Place
10-4 Decimals in Multiple Forms

Learn Decimal place value

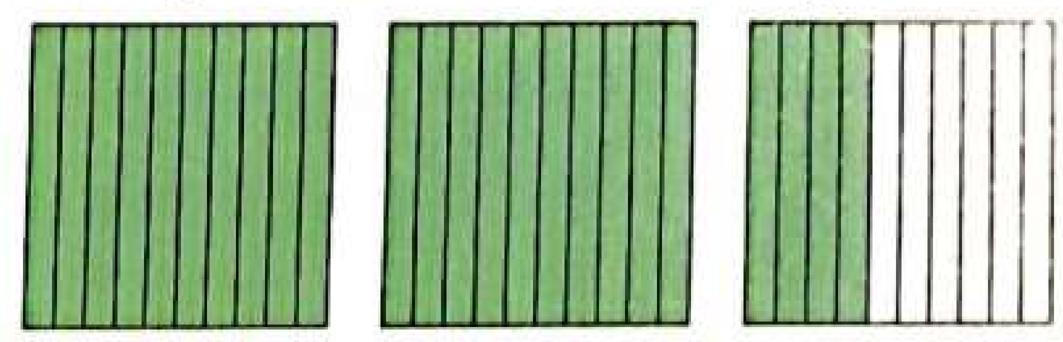
A table tennis ball weighs between 2.4 grams and 2.53 grams.

You can use a place-value chart to show decimals.

Ones		Tenths	Hundredths
2	.	4	
2	.	5	3

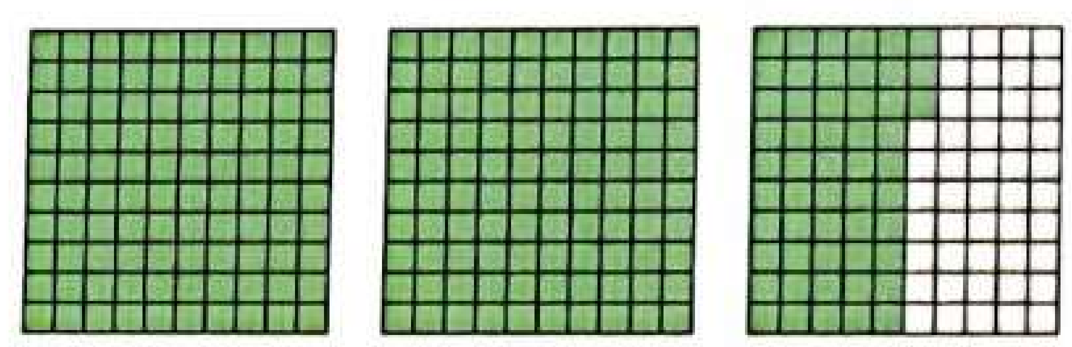
In 2.4, the place to the right of the decimal point shows how many tenths. Read 2.4 as two and four tenths.

- The value of 2 is 2
- The value of 4 is 0.4 $(= \frac{4}{10})$

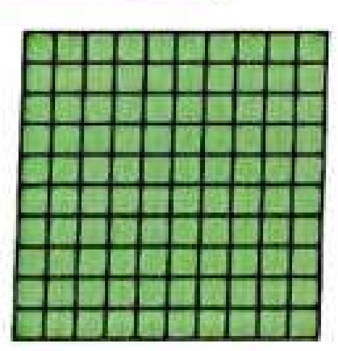
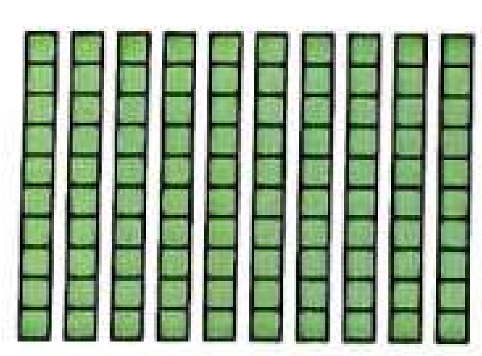
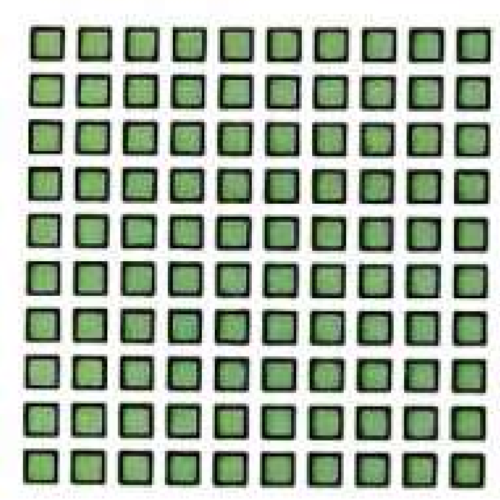


In 2.53, the places to the right of the decimal point show how many hundredths. Read 2.53 as two and fifty-three hundredths.

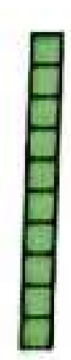
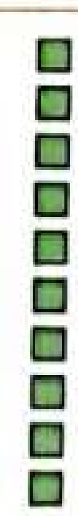
- The value of 2 is 2
- The value of 5 is 0.5 $(= \frac{5}{10})$
- The value of 3 is 0.03 $(= \frac{3}{100})$



Remarks

One whole = 10 tenths = 100 hundredths

One tenth = 10 hundredths

Talk about it

What is the value of each 5 in 2.55 ?

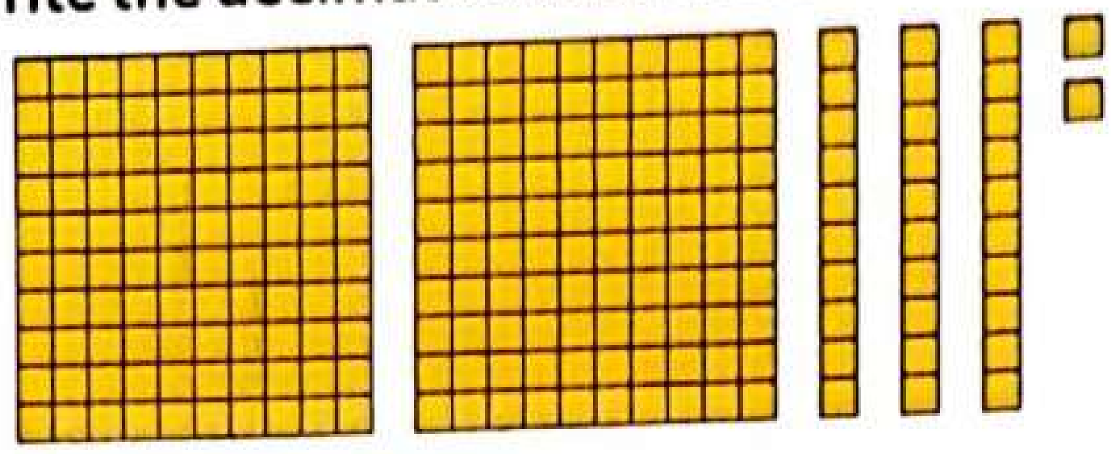
Notes for parents :

- When discussing the lesson, focus on the importance of the place-value relationship between tenths and hundredths. You may wish to ask questions such as the following.
- How many hundredths make 1 tenth ? 10
- How many tenths are there on a hundredths grid ? 10

Example 1

Write the decimal to describe each model.

a.



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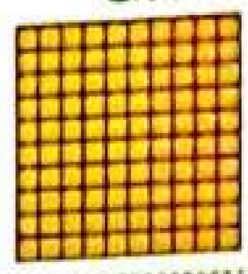
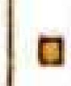
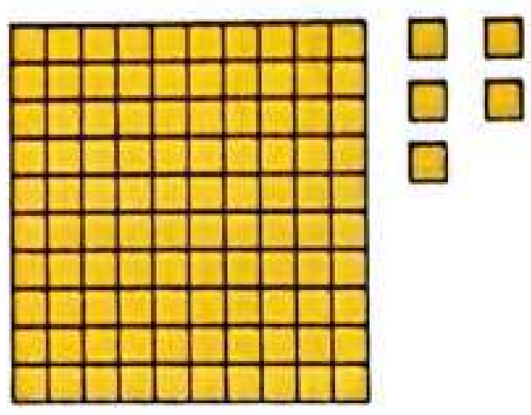
Given

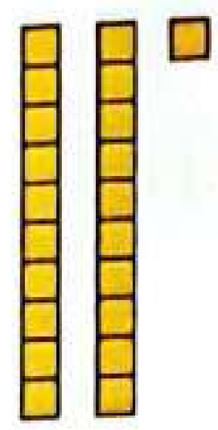
 stands for one whole. stands for one tenth.  stands for one hundredth.

b.



____

c.



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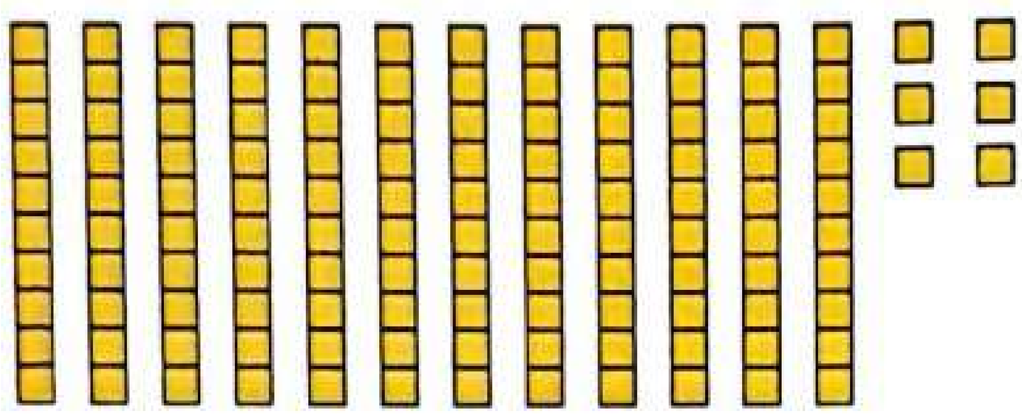
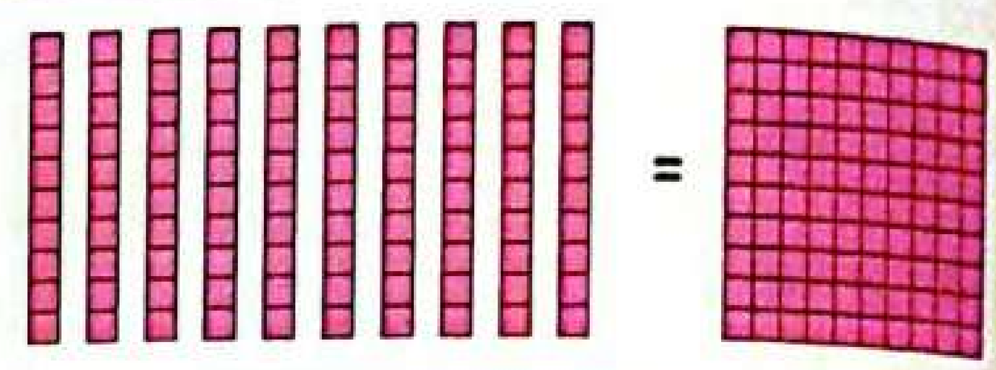
d.

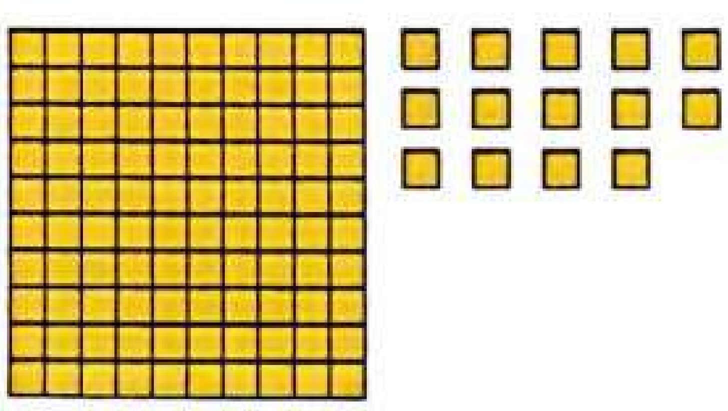


____

Remark

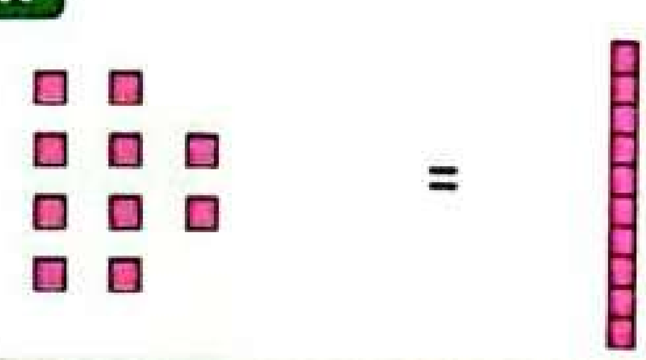


e.



____

Remark



Solution

a. 2.32

b. 1.05

c. 0.21

d. 1.26

e. 1.14

Notes for parents :

- Make sure that your child understand how he/she review 10 tenths as 1 whole.

Example 2

a. Write a number formed from 6 Ones , 4 Tenths , 8 Hundredths.

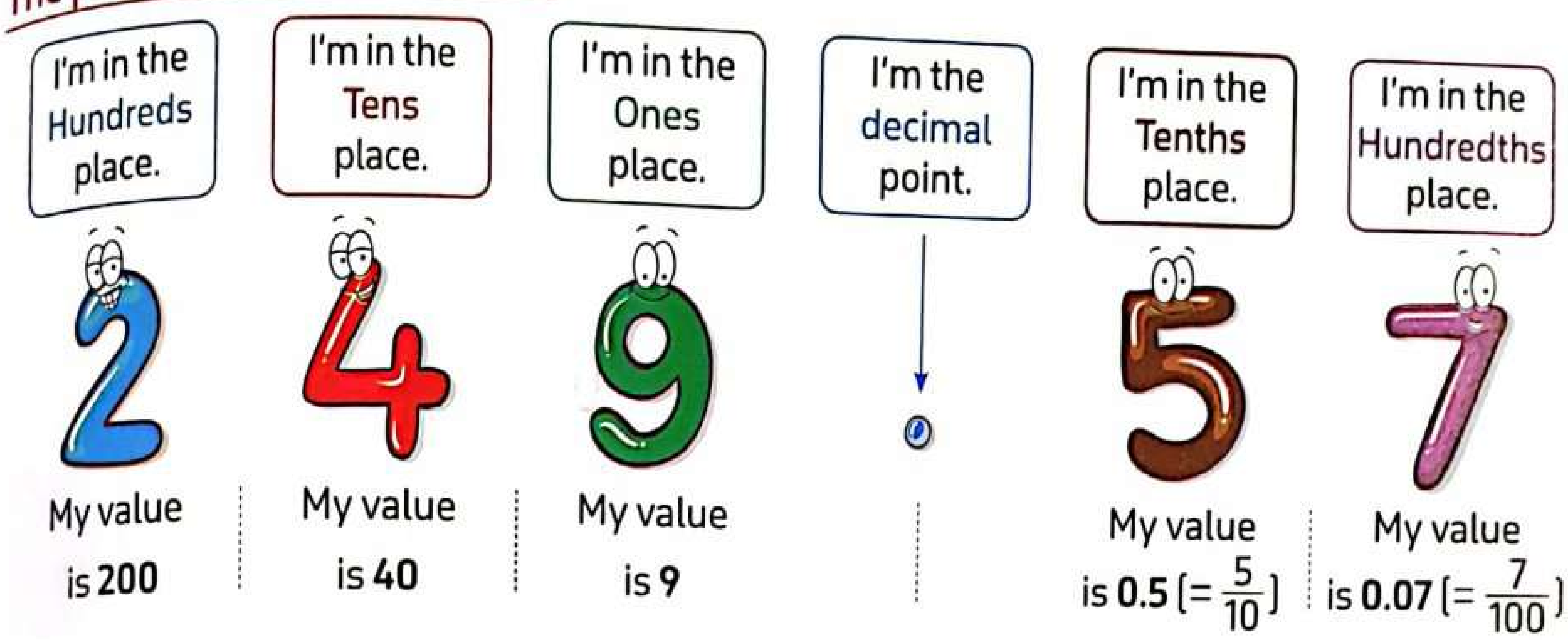
b. Write a number formed from two and seven hundredths.

c. Write a number formed from fifteen and thirty-one hundredths.

Solution

a. 6.48 | b. 2.07 | c. 15.31

The place value of decimals



Example 3

In the number 325.78

a. What is the value of 7 ?

b. What is the value of 2 ?

c. What is the value of digit in hundredth ?

Solution

a. 0.7 | b. 20 | c. 0.08

Check your understanding

Write the value of circled digit in each of the following.

a. 32.7④ ________ | b. 174.②5 ________

c. 1③5.58 ________ | d. ⑦42.27 ________

• Let your child point to each digit in the decimal and say the place value of it and write its value.

Learn Different forms of decimals

Decimals, like whole numbers, can be written in standard form, word form, unit form and expanded form.

Ones		Tenths	Hundredths
2	.	7	
3	.	6	5
5	.	0	3

Standard form	Word form	Unit form	Expanded form
2.7	two and seven tenths	2 Ones , 7 Tenths	2 + 0.7
3.65	three and sixty-five hundredths	3 Ones , 6 Tenths , 5 Hundredths	3 + 0.6 + 0.05
5.03	five and three hundredths	5 Ones , 3 Hundredths	5 + 0.03

Example 4

Write in word form.

a. 7.12

b. 3 + 0.7 + 0.04

c. 6 Ones , 8 Hundredths.

Solution

a. Seven and twelve hundredths.

b. Three and seventy-four hundredths.

c. Six and eight hundredths.

Example 5

Write in expanded form.

a. Four and eighteen hundredths.

b. 3.09

c. 7 Ones , 2 Tenths.

Solution

a. 4 + 0.1 + 0.08

b. 3 + 0.09

c. 7 + 0.2

Notes for parents :

- Give your child a decimal as 2.35 , and ask him/her to write this decimal in different forms as possible as he/she can.

Example 6

Write in unit form.

a. $8 + 0.1 + 0.03$

b. Two and forty hundredths.

c. 3.41

Solution

a. 8 Ones , 1 Tenth , 3 Hundredths.

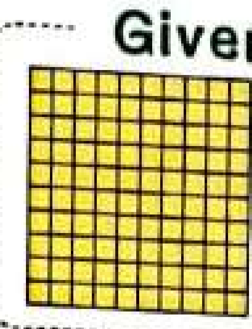
b. 2 Ones , 40 Hundredths. Or 2 Ones , 4 Tenths.

c. 3 Ones , 4 Tenths , 1 Hundredth.

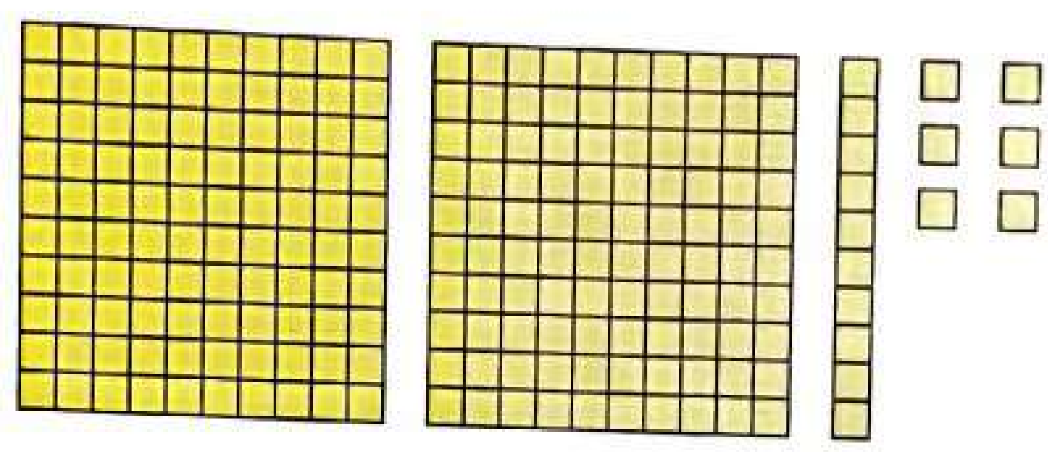
Example 7

Complete to represent the model.

Given

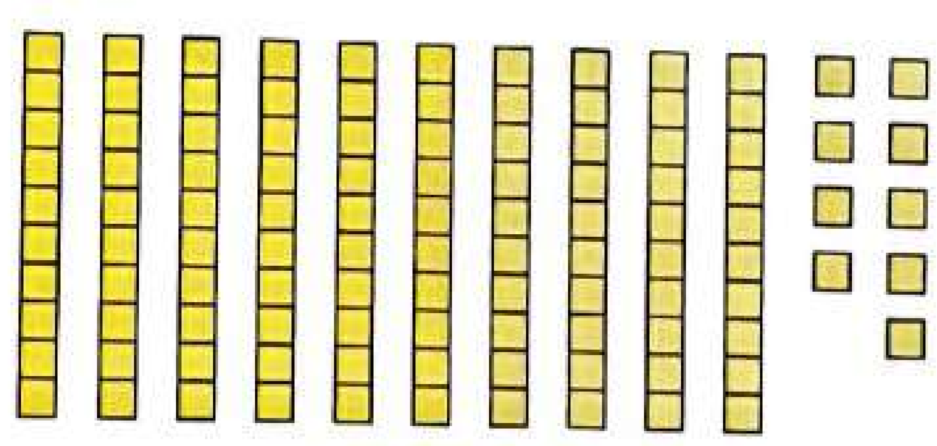
 stands for one whole. stands for one tenth. □ stands for one hundredth.

1. a. Standard form : ________
   b. Word form : ________
   c. Unit form : ________
   d. Expanded form : ________



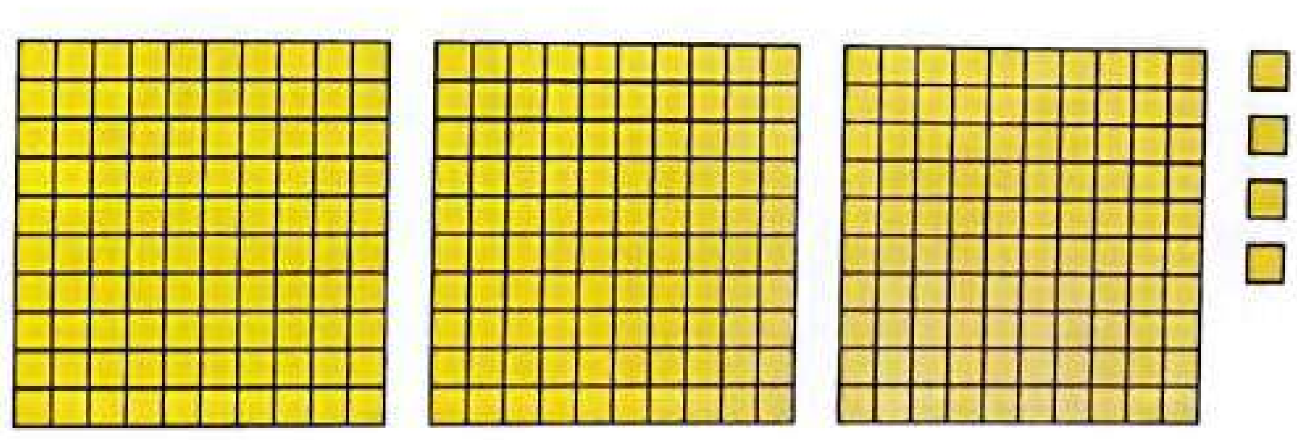
____

2. a. Standard form : ________
   b. Word form : ________
   c. Unit form : ________
   d. Expanded form : ________



____

3. a. Standard form : ________
   b. Word form : ________
   c. Unit form : ________
   d. Expanded form : ________



• After your child write decimals in this page, ask him/her to tell which digit is in the tenths place and which is in the hundredths place.

Solution

1. a. 2.16
   b. Two and sixteen hundredths
   c. 2 Ones , 1 Tenths , 6 Hundredths
   d. 2 + 0.1 + 0.06

2. a. 1.09
   b. One and nine hundredths
   c. 1 Ones , 9 Hundredths
   d. 1 + 0.09

3. a. 3.04
   b. Three and four hundredths
   c. 3 Ones , 4 Hundredths
   d. 3 + 0.04

Check your understanding

Complete.

a. 3.72 in expanded form is ____________ .

b. 5 + 0.1 + 0.07 is word form is ____________ .

c. Seven and thirteen hundredths in standard form is ____________ .

d. 9.71 in unit form is ____________ .

Notes for parents :

- For any decimal in this page, let your child tell the digit and its value for example : 3,72 is 3 ones, 7 tenths, 2 hundredths.

Exercise 18

10-3 The Value of Place
10-4 Decimals in Multiple Forms

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING   From the school book

1. Use the number to answer the questions : 532.89.
   a. What is the value of the 3 ? ______
   b. What digit is in the Hundredths place ? ______
   c. What is the value of the digit in the Hundreds place ? ______
   d. What digit is in the Tenths place ? ______
   e. Why is the value of the digit in the Hundredths place worth less than the digit in the Tenths place if Hundreds are greater than Tens ? ______

2. a. Write a number formed from 7 Ones, 9 Tenths , 8 Hundredths. ______
   b. Write a number formed from 2 Tenths , 9 Hundredths. ______
   c. Write a number formed from five Ones , three Tenths , four Hundredths. ______
   d. Write a number formed from sixty-seven Hundredths. ______
   e. Write a number formed from one Ones , four Hundredths. ______

3. Complete.
   a. The value of the digit 3 in the number 1.35 is ______
   b. The value of the digit 5 in the number 132.85 is ______
   c. The value of the digit 9 in the number 19.82 is ______
   d. The place value of the digit 7 in the number 2.74 is ______
   e. The place value of the digit 0 in the number 10.62 is ______
   f. The place value of the digit 1 in the number 759.71 is ______

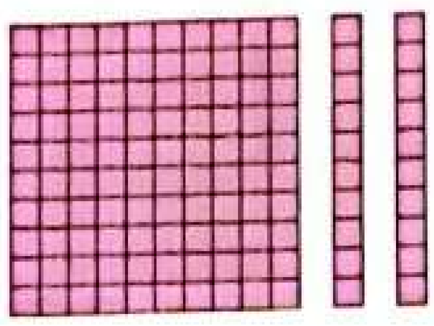
4. Put (✓) to the correct statement and (✗) to the incorrect statement.
   a. The value of the digit 5 in the number 14.75 is 0.05 [ ]
   b. The value of the digit 8 in the number 7.85 is 0.80 [ ]
   c. The place value of the digit 4 in the number 142.238 is Hundredths. [ ]
   d. The place value of the digit 9 in the number 346.91 is Ones. [ ]

5. Write a number that represent the following model.

Given

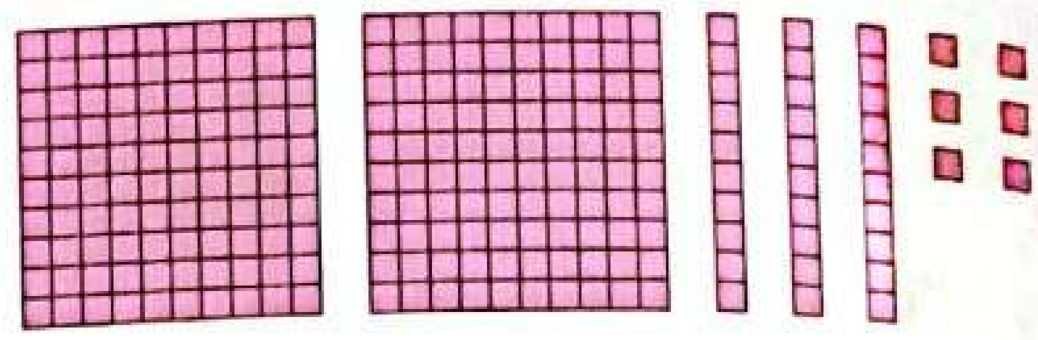
stands for one whole. | stands for one tenth. | stands for one hundredth.

a.



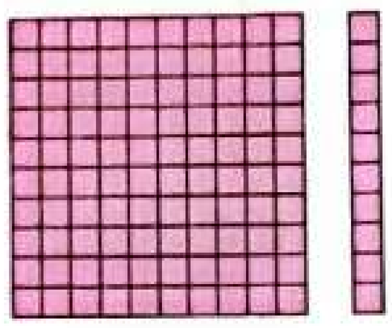
____

b.



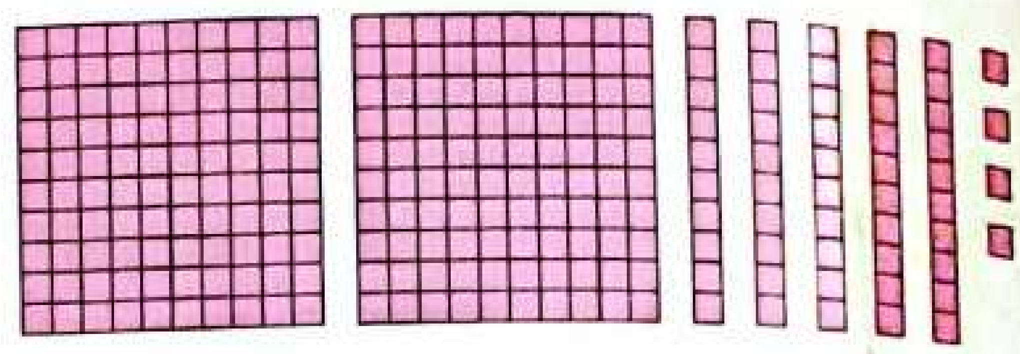
____

c.



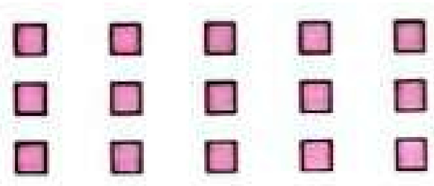
____

d.



____

e.



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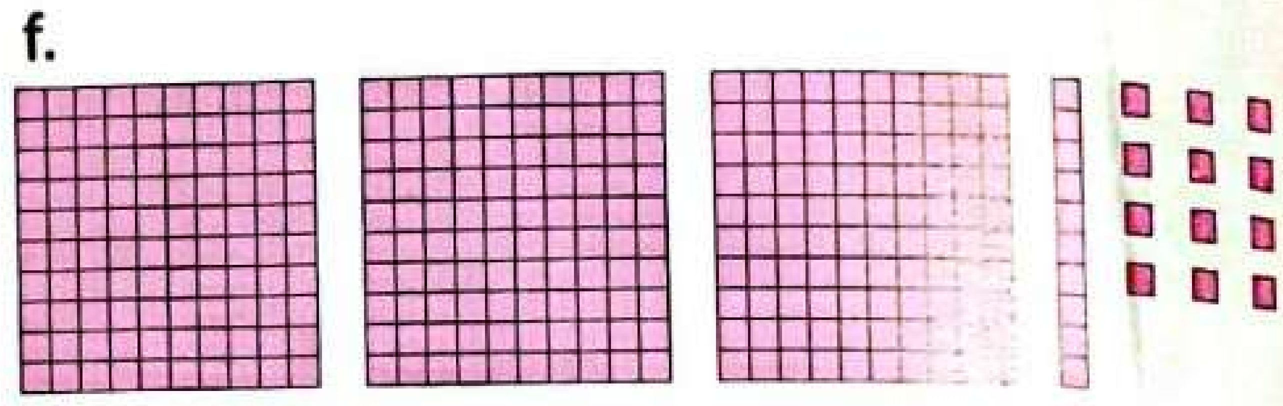
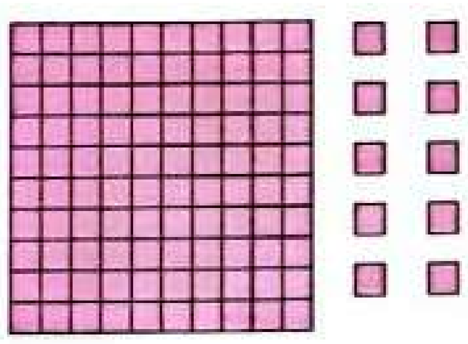
f.



____

g.



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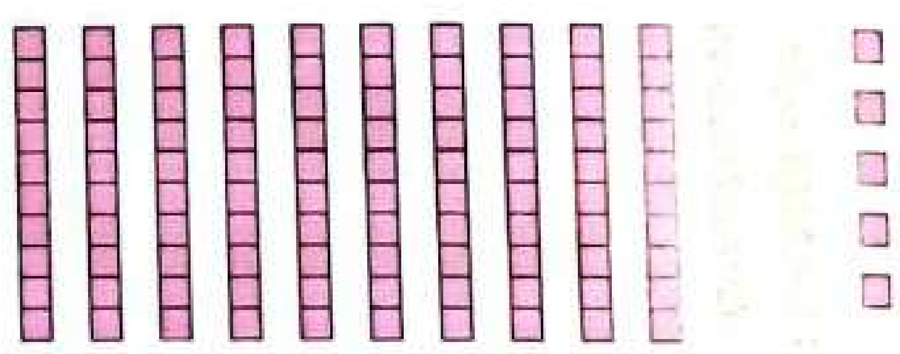
h.



____

6. Write the number in standard form.

a. 📖 5 + 0.5 + 0.01 ___________

b. 2 + 0.07 ___________

c. 📖 7 Ones , 9 Hundredths ___________

d. 5 Ones , 8 Tenths , 2 Hundredths ___________

e. 📖 Nine and Forty-Three hundredths ___________

f. Four and seven hundredths ___________

g. Forty-seven hundredths ___________

7. **Write the number in word form.**

a. 4.53 ____________________

b. 0.48 ____________________

c. 7.08 ____________________

d. 3.71 ____________________

e. 2 + 0.1 + 0.03 ____________________

f. 4 + 0.02 ____________________

g. 7 Ones . 3 Tenths , 7 Hundredths ____________________

h. 2 Ones , 9 Hundredths ____________________

8. **Write the number in expanded form.**

a. 3.78 ____________________

b. 2.04 ____________________

c. Two and fifty hundredths ____________________

d. One and eighteen hundredths ____________________

e. 5 Ones , 6 Tenths , 8 Hundredths ____________________

f. 6 Ones , 1 Tenth , 4 Hundredths ____________________

9. **Write the number in unit form.**

a. 4.52 ____________________

b. 8.01 ____________________

c. Seven and thirty-four hundredths ____________________

d. Fourteen hundredths ____________________

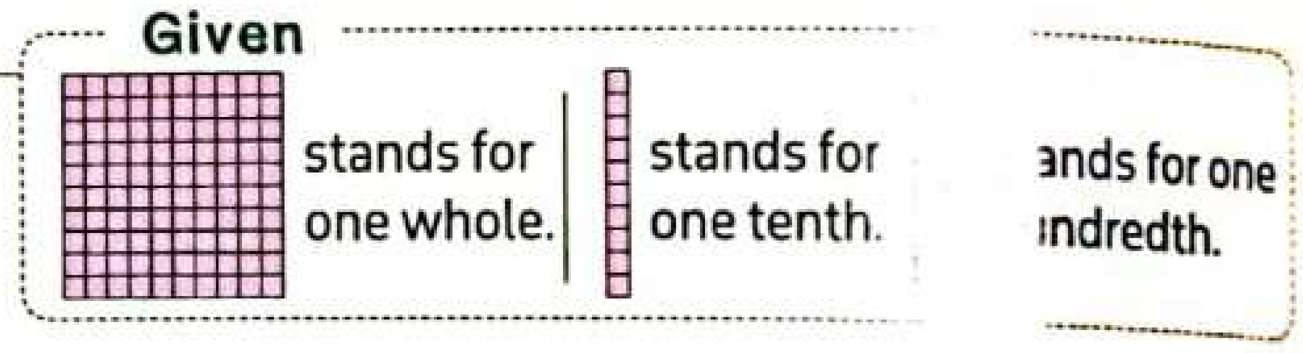
e. Sixty-nine hundredths ____________________

f. 7 + 0.6 + 0.01 ____________________

10. Complete the table.

	Standard form	Word form	Unit form	Expanded form
a.	5.03			
b.		Three and seventy-eight hundredths		
c.			7 Ones , 6 Tenths , 3 Hundredths	
d.				5 + 0.1 + 0.07
e.	15.9			
f.		Sixteen and six hundredths		
g.			5 Ones , 9 Tenths	
h.				[illegible] + 0.08

11. Complete to represent each model.

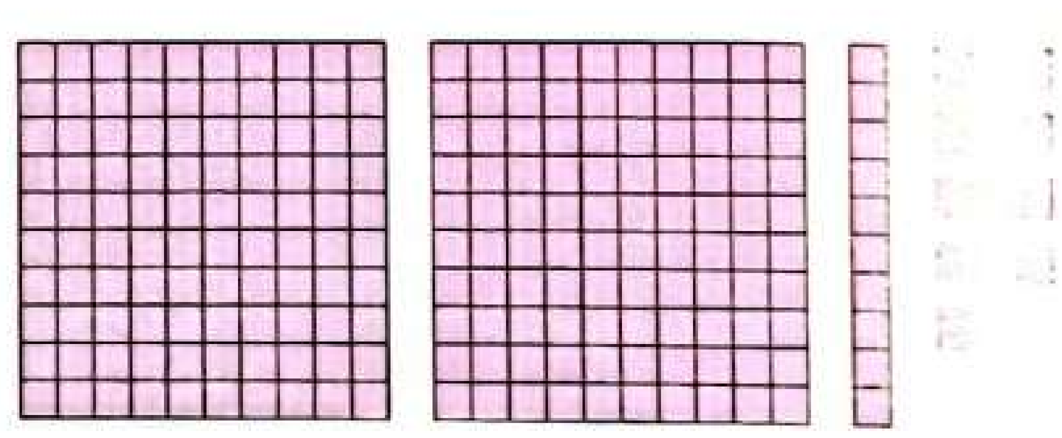


a. Standard form : ________

Word form : ________

Unit form : ________

Expanded form : ________

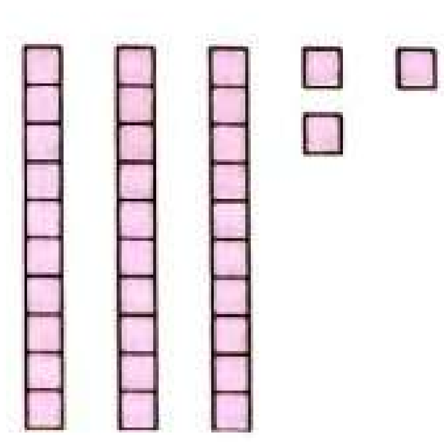


b. Standard form : ________

Word form : ________

Unit form : ________

Expanded form : ________

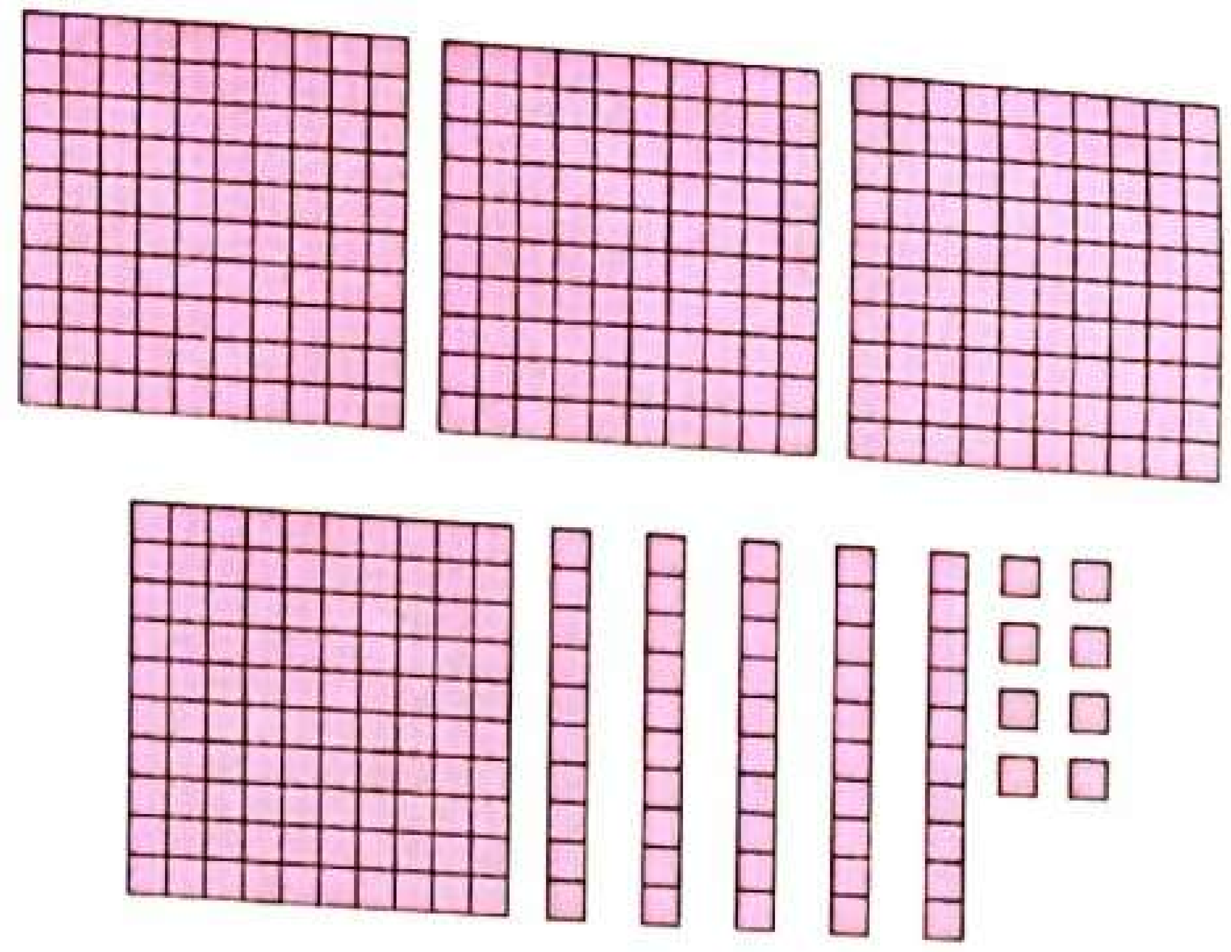


c. 📖 Standard form : ....

Word form : ....

Unit form : ....

Expanded form : ....



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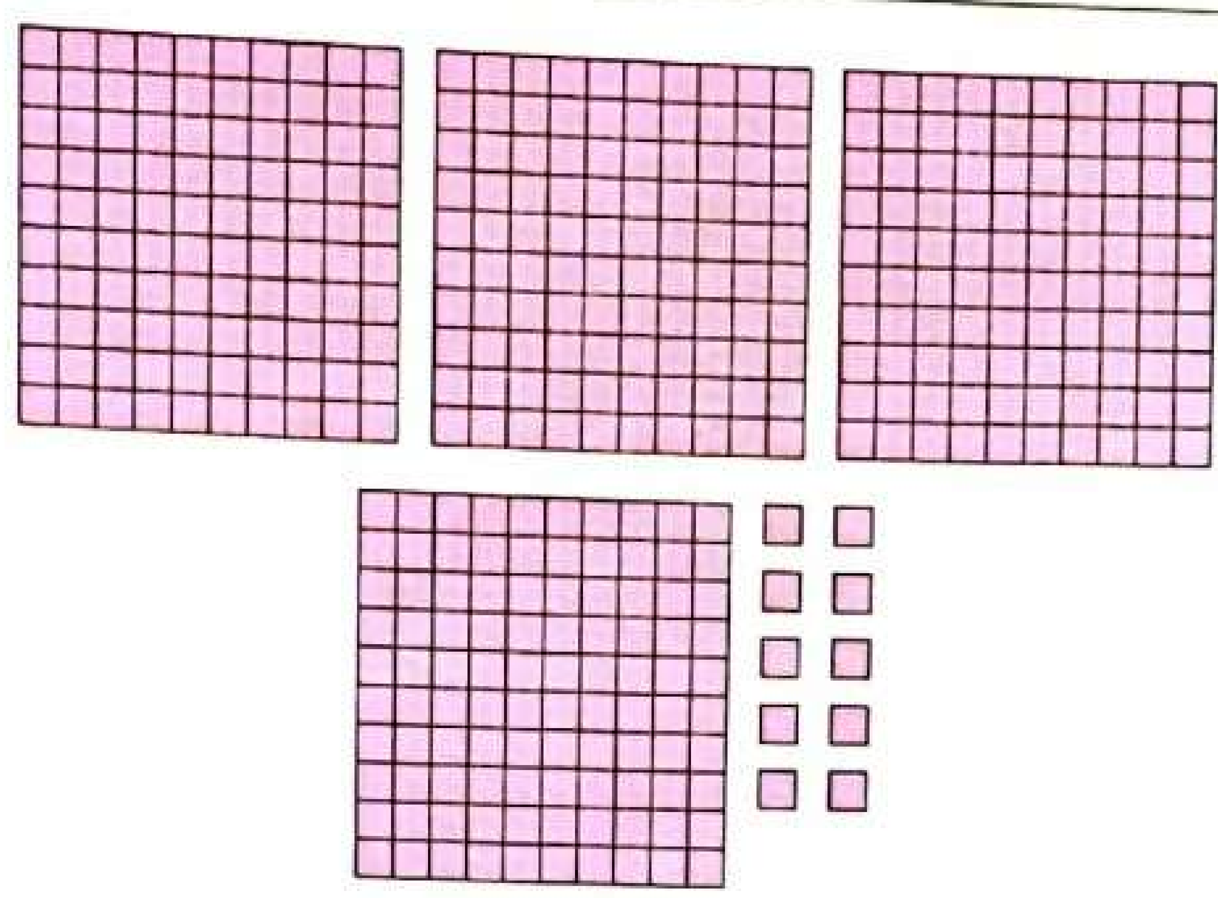
d. 📖 Standard form : ....

Word form : ....

Unit form : ....

Expanded form : ....



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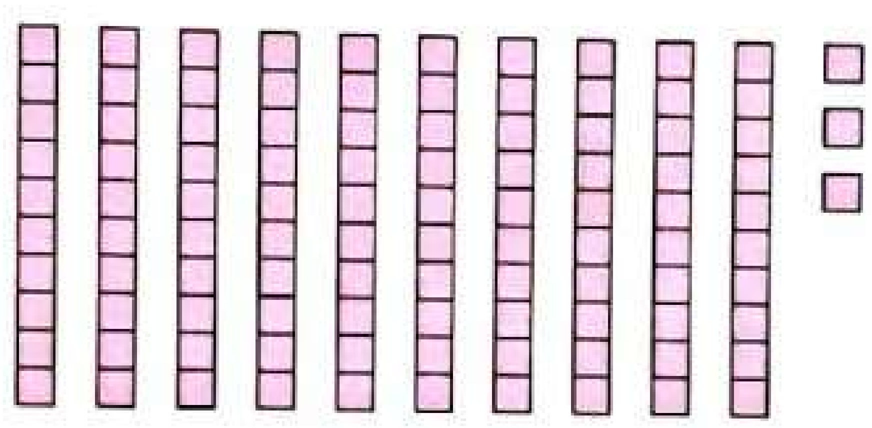
e. 📖 Standard form : ....

Word form : ....

Unit form : ....

Expanded form : ....



---

12. a. Draw a circle around the numbers that equals thirty and two tenths.

3.2 , 30.02 , 3 Tens , 2 Tenths , 30.2 , 30 + 0.20 , 30 + 0.02

b. Draw a circle around the numbers that equals four and five hundredths.

4.54 + 0.50 , 4 + 0.05 , 4 Ones , 5 Tenths , 4 Ones , 5 Hundredths

c. Draw a circle around the numbers that equals 7 + 0.1 + 0.05

Seven and fifty-one hundredths , 7.15 , 7 + 0.5 + 0.1 ,

7 Ones , 1 Tenth , 5 Hundredths , 70 + 0.1 + 0.05

d. **Draw a circle around the numbers that equals 3 + 0.2 + 0.03**

3 Tens , 23 Hundredths , 3.23 , 3.023 , 3 Ones , 23 Hundredths

e. **Draw a circle around the numbers that equals 8 Ones , 13 Hundredths**

8.13 , 80.13 , 8 + 0.1 + 0.03 , eight and thirty hundredths

---

13. **Complete each of the following.**

a. Seven tenths = ...

b. Nine hundredths = ...

c. Twenty two and thirty-five hundredths = ...

d. Eighteen and six tenths = ...

e. 3.2 = 3 + ...

f. 9.1 = ... + 0.1

g. 7.4 = ... + ...

h. .... = 6 + 0.3

i. .... = 38 + 0.6

j. 25.69 = 25 + ...

k. 1.04 = ... + ...

l. .... = 125 + 0.15

m. 6.48 = 6 + ... + 0.08

n. 3 + 0.03 + 0.3 = ...

---

14. Write two numbers have 4 tenths .... , ...

Challenge

15. I am a decimal greater than 1 but less than 3. All my digits are even. My Tenths digit is three times my Ones digit. My Hundredths digit is 8. What decimal am I ?

....

Multiple Choice Questions

Choose the correct answer.

1. Which shows 6.05 written in word form ?

A. Six hundred five.
B. Six and five hundredths.
C. Six and five tenths.
D. Six and fifty hundredths.

2. What decimal is represented in expanded form below ? 7 + 0.5 + 0.03

A. 7.35 B. 7.53
C. 70.35 D. 75.3

3. The value of the digit 4 in the number 3.94 is ______

A. 4 B. 0.4
C. 0.04 D. 40

4. The value of the digit 0 in the number 6.05 is ______

A. 0.1 B. 0
C. 0.05 D. 1

5. The underlined digit in $15.\underline{4}2$ is in ______ place.

A. Ones B. Tens
C. Tenths D. Hundredths

6. In the number 325.41 , which digit is in the Hundredths place ? ______

A. 1 B. 2
C. 3 D. 4

7. Which number of the following has 3 Tenths , 9 Ones , 8 Hundredths ?

A. 3.98 B. 8.93
C. 9.38 D. 3.89

8. Fifteen hundredths = ______

A. 150 B. 15
C. 1.5 D. 0.15

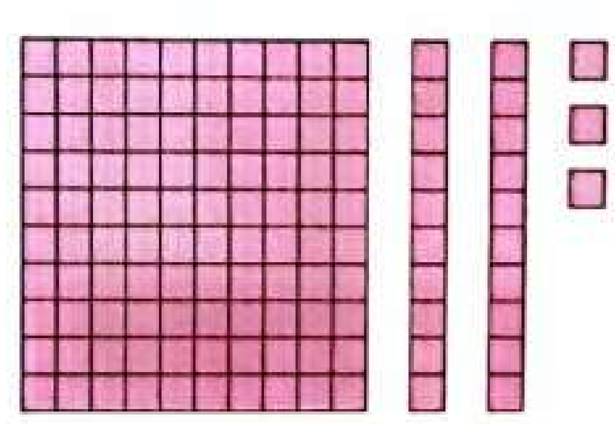
9. 74.53 = 74 + ______

A. 53 B. 5.3
C. 0.53 D. 530

10. 60.57 = 60 + ______ + 0.07

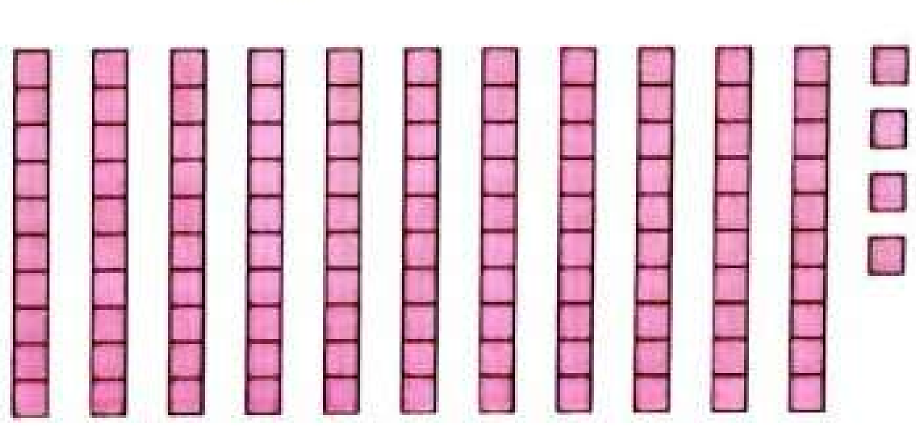
A. 500 B. 50
C. 5 D. 0.5

11. The number that represent the opposite model is ______



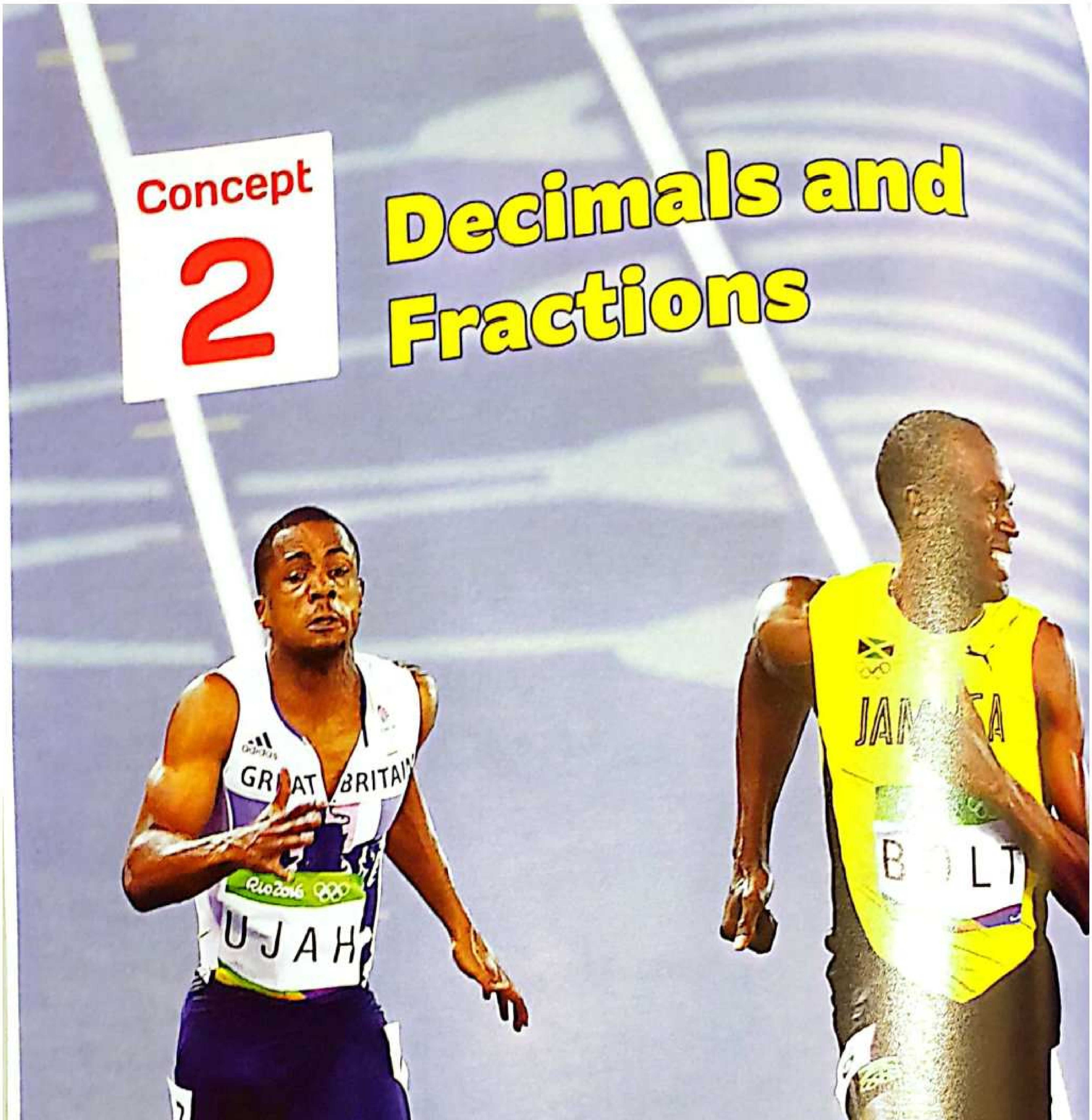
A. 1.12 B. 1.23
C. 1.32 D. 2.32

12. The number that represent the opposite model is ______



A. 1.41 B. 1.4
C. 11.4 D. 1.14

Concept 2 Decimals and Fractions



Fast Fact

In 2009, Usain Bolt set the world record in the 100-metre sprint at 9.58 seconds. He still known as the fastest man in the world.

Concept Overview

In concept 2:

Decimals and Fractions, students strengthen their ability to read, write, and identify decimals to the Hundredths place using visual models. They continue to practice representing a quantity as a fraction and a decimal and delve further into the relationship between the two. Finally, they expand upon the idea that 0.3 = 0.30 to help express equivalent fractions with denominators of 10 and 100.

Lesson No.	Lesson Name	Vocabulary Terms	Learning Objectives
Lesson 3	10-5 Same Value, Different Ways	Equivalent - Decimal notation - Denominator	• Students will read and write decimals as fractions.
	10-6 The Whole Breakdown	Review vocabulary as needed.	• Students will explain the relationship between decimals and fractions. • Students will explain the relationship between decimals, fractions, and the whole.
Lesson 4	10-7 All Things Equal	Equivalence - Equivalent	• Students will create equivalent fractions and decimals to the Hundredths place.

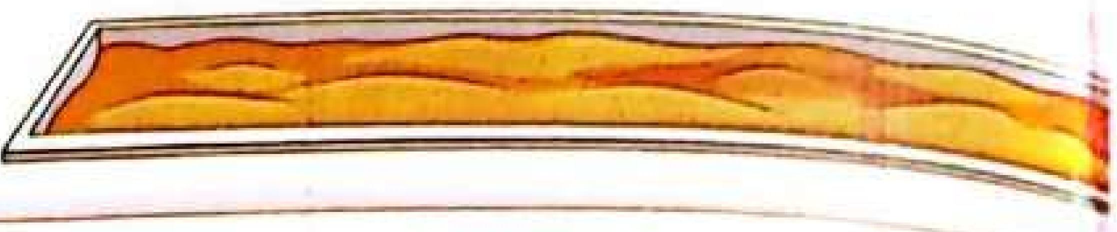
Lesson 3

10-5 Same Value , Different Ways
10-6 The Whole Breakdown

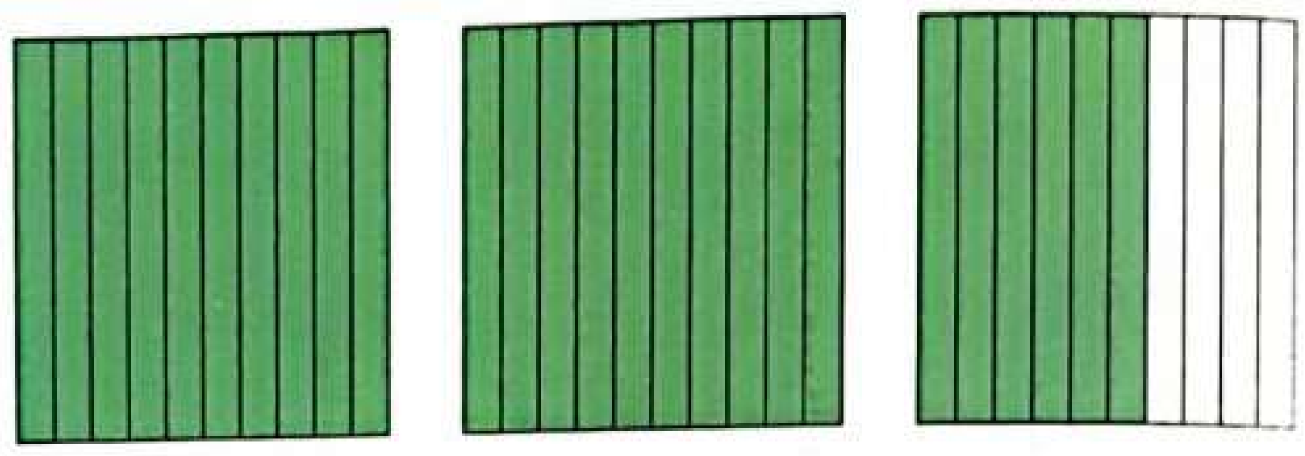
Learn Same value in different forms

In the long jump competition,
Adel jumped two and six tenths metres.

How can you represent this length in different forms ?



Model :



Mixed Number : $2\frac{6}{10}$

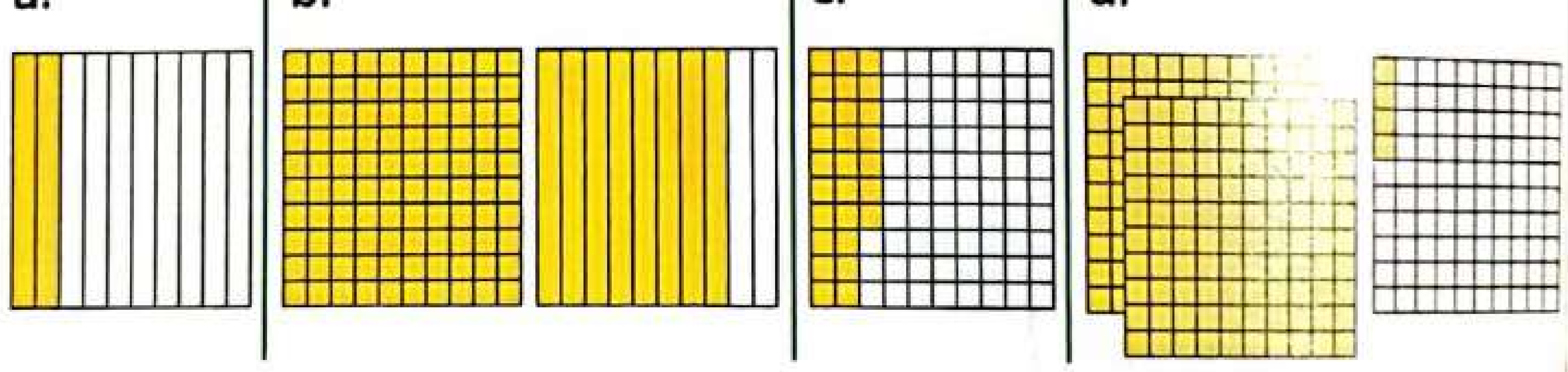
Decimal : 2.6

Word form : Two and six tenths.

Example 1

Write the fraction and the decimal for the shaded part

a. b. c. d.



Solution

a. $\frac{2}{10}$, 0.2

b. $1\frac{8}{10}$, 1.8

c. $\frac{27}{100}$, 0.27

d. $2\frac{4}{100}$, 2.04

Notes for parents :

- Remind your child that he/she can write three forms for the shaded parts the fraction, the decimal, and the word form.

Example 2

Write the fraction for each of the following decimals.

a. 0.4 b. 0.13 c. 0.07 d. 2.93

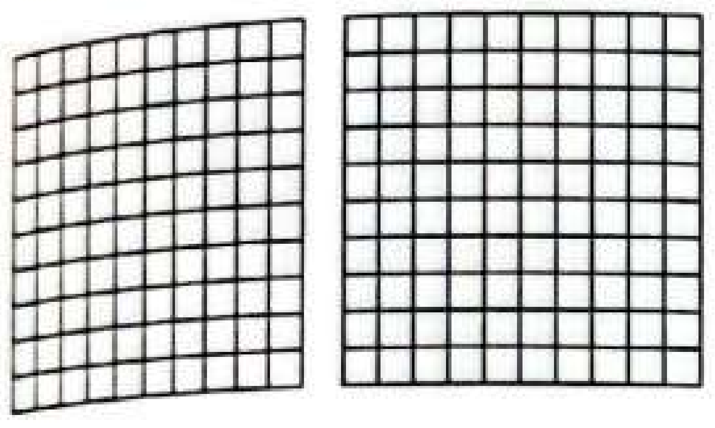
Solution

a. $\frac{4}{10}$ b. $\frac{13}{100}$ c. $\frac{7}{100}$ d. $2\frac{93}{100}$

Example 3

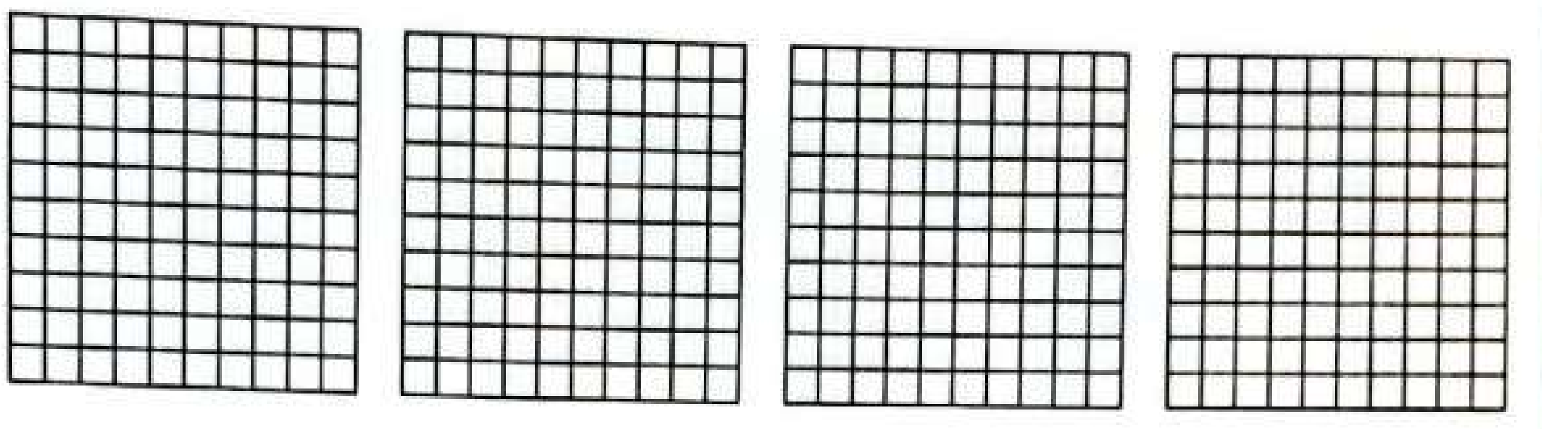
Color a model for each decimal and write it in fraction form.

a. 1.28



The fraction is ____________

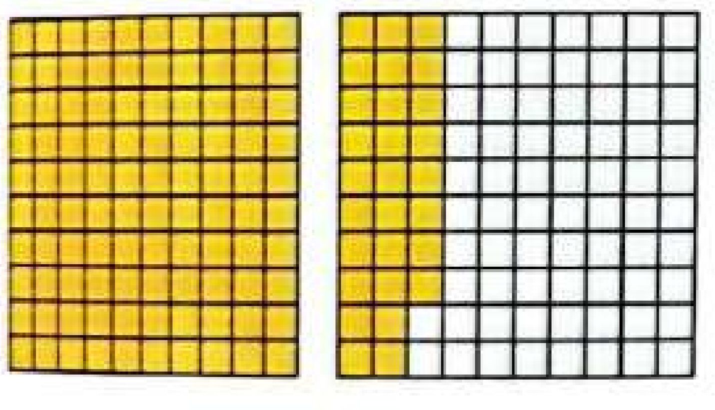
b. 3.02



The fraction is ____________

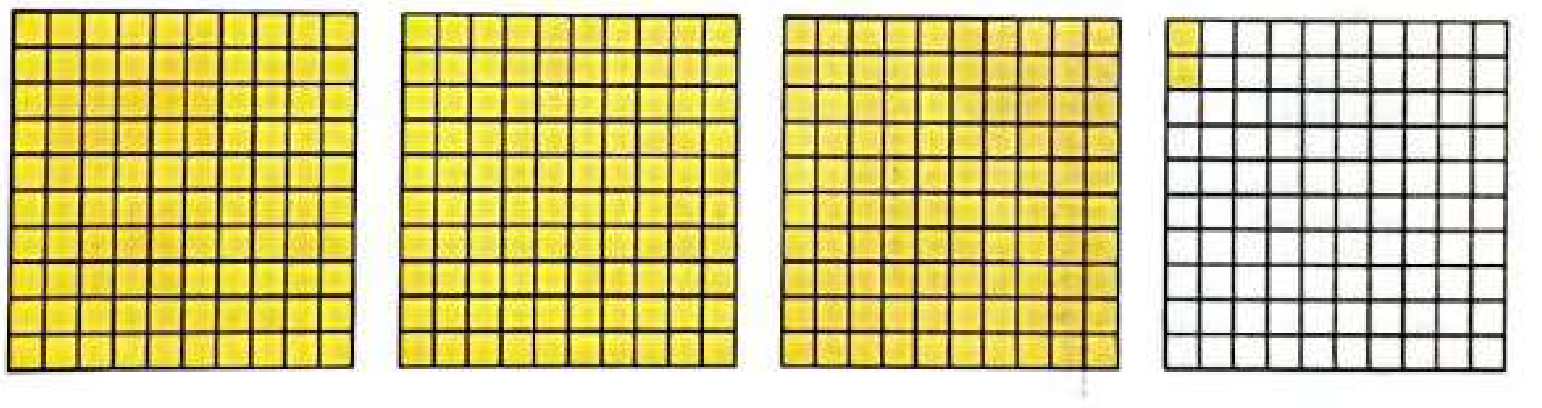
Solution

a.



The fraction is $1\frac{28}{100}$

b.



The fraction is $3\frac{2}{100}$

Check your understanding

Write the fraction form for each of the following decimals.

a. 0.9 ________ | b. 2.7 ________ | c. 3.74 ________ | d. 7.05 ________

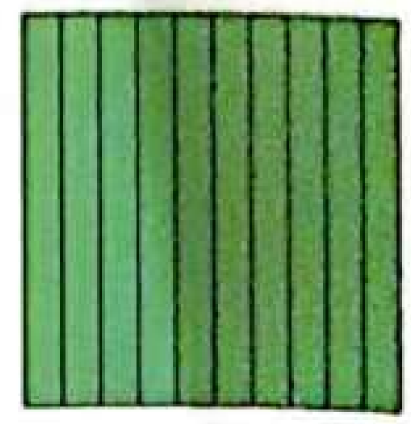
*Ask your child to choose one problem from the check your understanding and explain his/her answer.

Learn The Parts of the one whole

There are 10 tenths

in the whole one

then 1 = 10 tenths = $\frac{10}{10}$



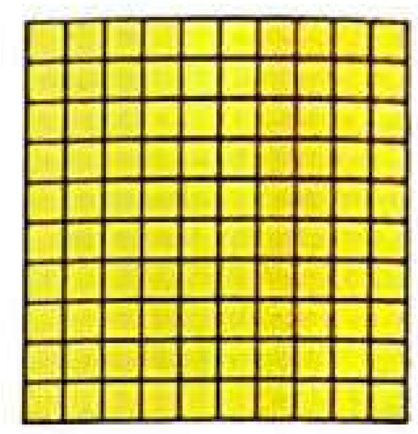
Examples

- 5 = 50 tenths = $\frac{50}{10}$
- 1.7 = 17 tenths = $\frac{17}{10}$
- 9 = 90 tenths = $\frac{90}{10}$
- 10.3 = 103 tenths = $\frac{103}{10}$

There are 100 hundredths

in the whole one

then, 1 = 100 hundredths = $\frac{100}{100}$



Examples

- 5 = 500 hundredths = $\frac{500}{100}$
- 1.7 = 170 hundredths = $\frac{170}{100}$
- 9 = 900 hundredths = $\frac{900}{100}$
- 10.3 = 1030 hundredths = $\frac{1030}{100}$

More Examples

- 2.9 = 29 tenths = 290 hundredths
- 7 = 70 tenths = 700 hundredths

Check your understanding

Write each fraction form for each of the following decimals.

a. 7 = ______ hundredths.

b. ______ = 20 tenths.

c. 3.4 = ______ tenths.

d. 16 tenths = $\frac{\quad}{\quad}$

e. $\frac{185}{100}$ = ______ hundredths.

f. 11.2 = ______ hundredths.

Notes for parents :

- Ask your child how many tenths are there in 6 , and how many hundredths in 6 ?

Exercise 19

10-5 Same Value , Different ways

10-6 The Whole Breakdown

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING 📖 From the school book

1. Express each modal as a fraction and a decimal.

a. 📖

$\frac{\quad}{\quad}$, ______

b. 📖

$\frac{\quad}{\quad}$, ______

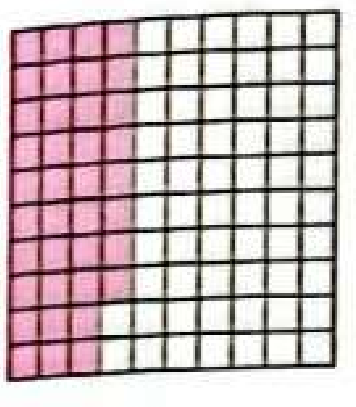
c.

$\frac{\quad}{\quad}$, ______

d.

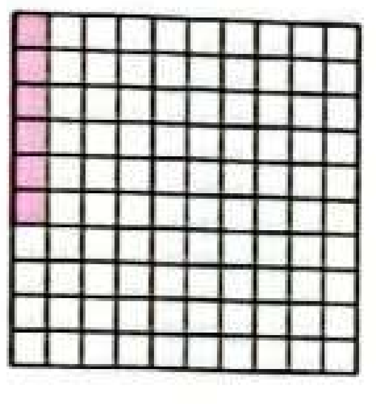
$\frac{\quad}{\quad}$, ______

e. 📖



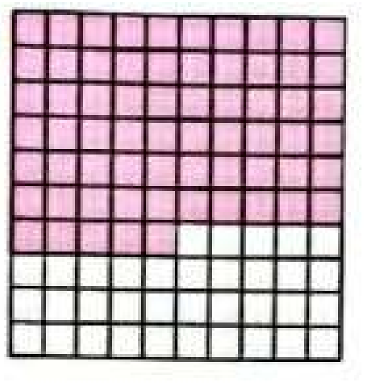
______ , ______

f.



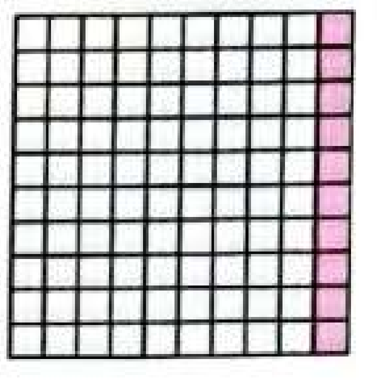
______ , ______

g. 📖



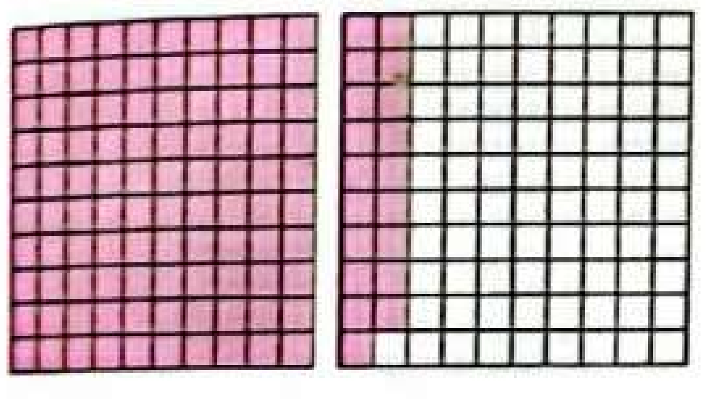
______ , ______

h.



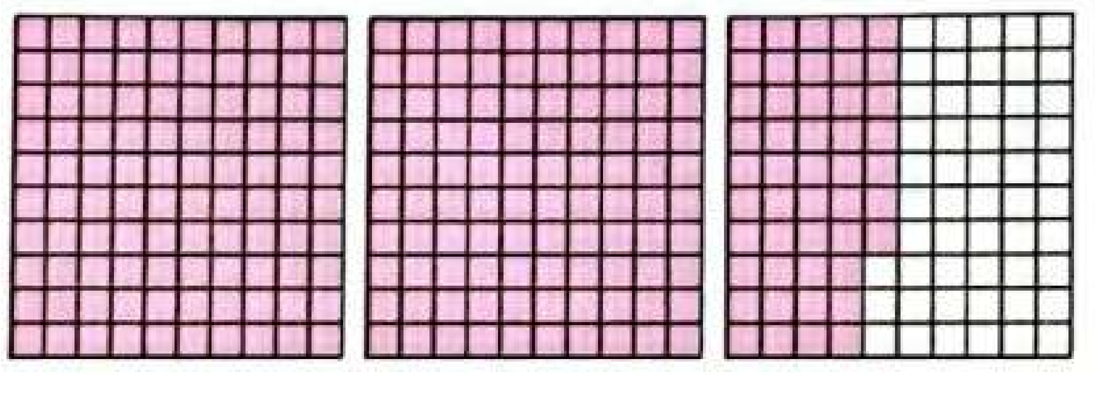
______ , ______

i.



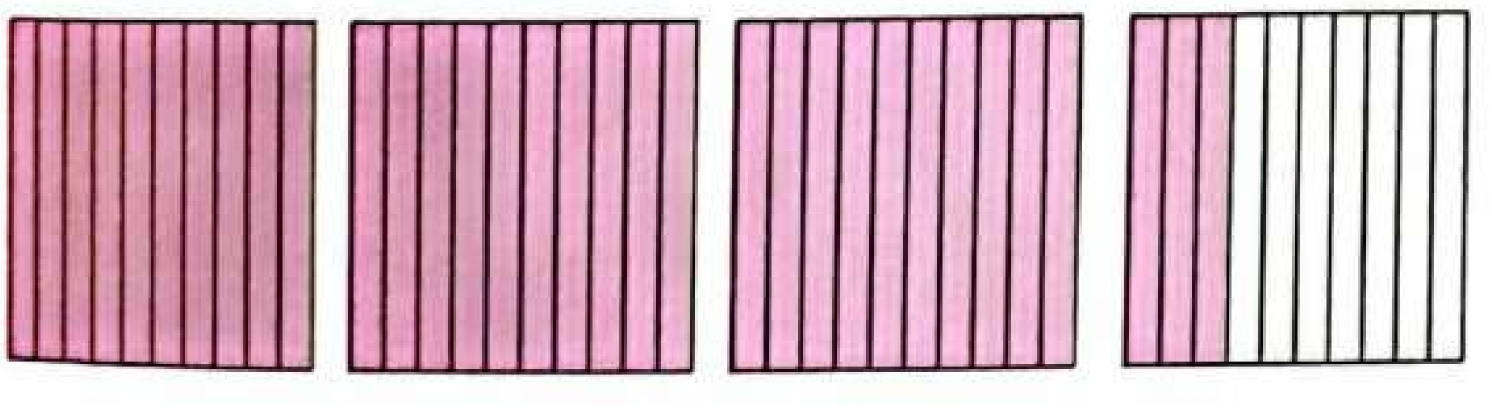
______ , ______

j.



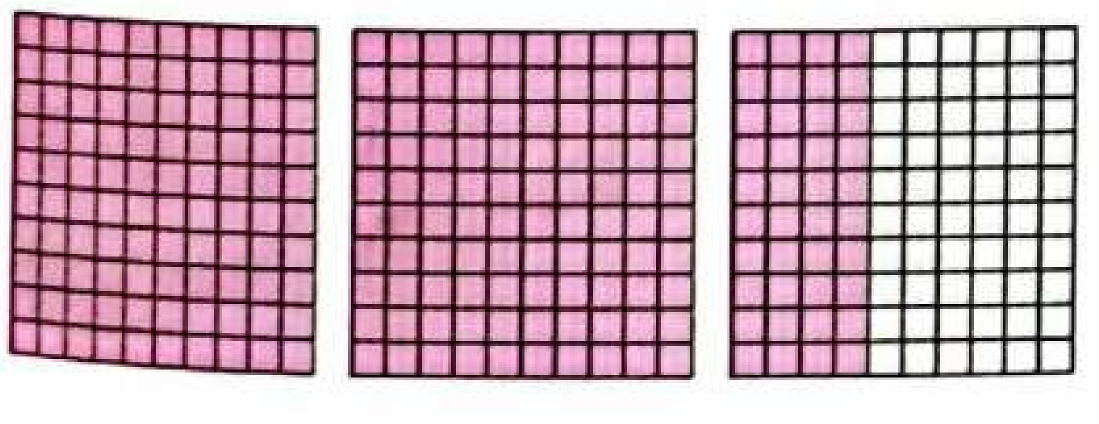
______ , ______

k.



______ , ______

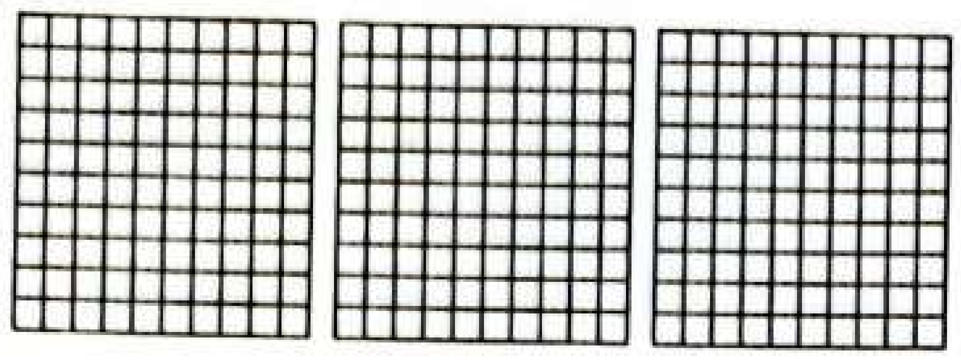
l.



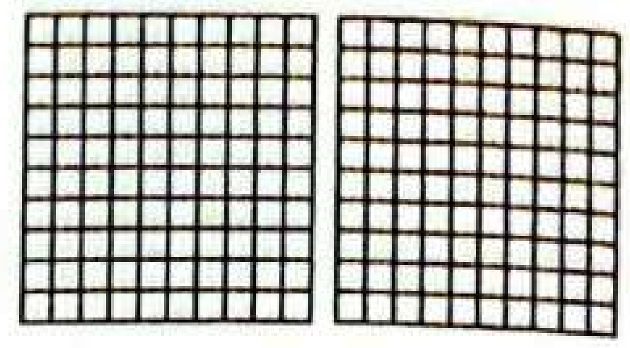
______ , ______

2. Create a model for each decimal and write it as a fraction.

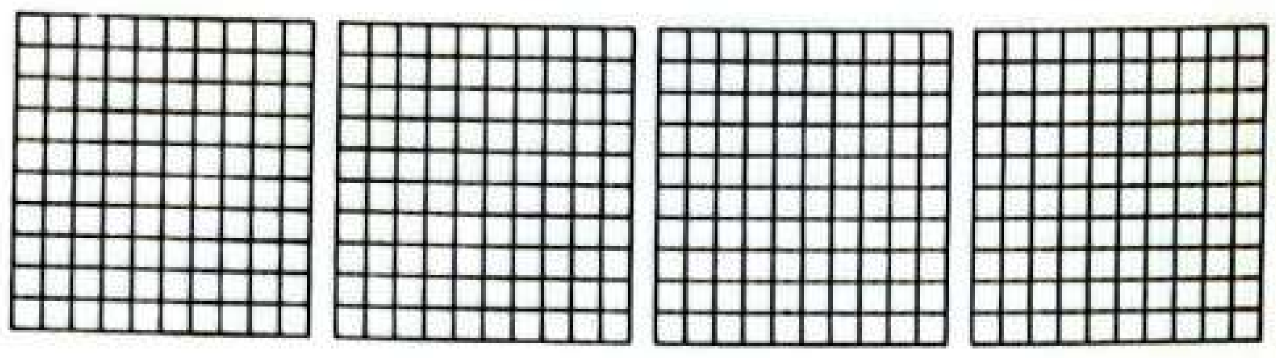
a. 2.93



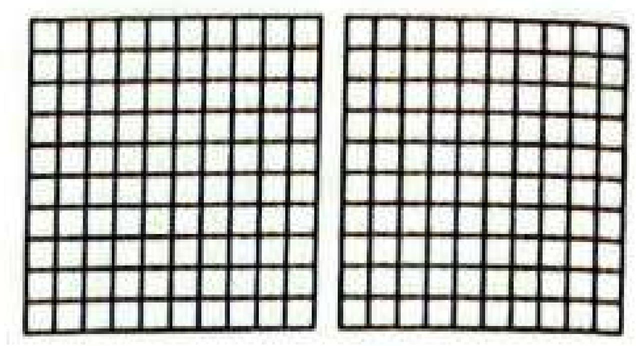
b. 1.70



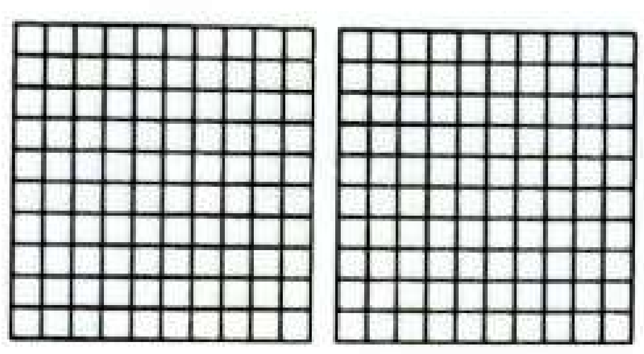
c. 3.04



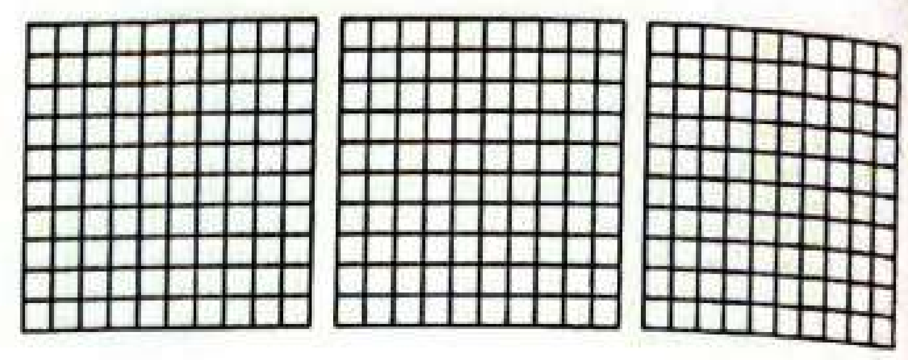
d. 1.32



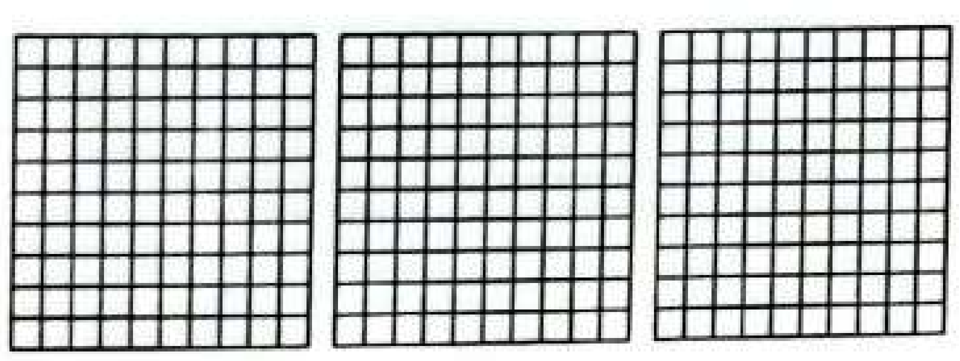
e. 1.12



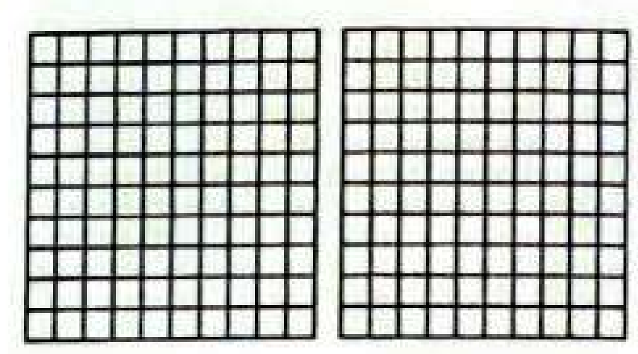
f. 2.74



g. 2.3



h. 1.09



3. Express the decimals as fractions.

a. 7.6 = ____________

b. 3.4 = ____________

c. 10.05 = ____________

d. 2.02 = ____________

e. 2.20 = ____________

f. 5.97 = ____________

g. 4.79 = ____________

h. 6.28 = ____________

i. 3.27 = ____________

4. Decompose the units to represent each number as Tenths and then write the number as a fraction.

a. 3

Tenths : ______

In fraction form : ______

b. 1

Tenths : ______

In fraction form : ______

c. 4

Tenths : ______

In fraction form : ______

d. 1.3

Tenths : ______

In fraction form : ______

e. 1.5

Tenths : ______

In fraction form : ______

f. 2.3

Tenths : ______

In fraction form : ______

g. 5.1

Tenths : ______

In fraction form : ______

h. 17.4

Tenths : ______

In fraction form : ______

i. 10.8

Tenths : ______

In fraction form : ______

j. 24.6

Tenths : ______

In fraction form : ______

5. Decompose the units to represent each number as Hundredth and then write the number as a fraction.

a. 1

Hundredths : ______

In fraction form : ______

b. 3

Hundredths : ______

In fraction form : ______

c. 5

Hundredths : ______

In fraction form : ______

d. 19

Hundredths : ______

In fraction form : ______

e. 1.5

Hundredths : ....

In fraction form : ....

f. 2.3

Hundredths : ....

In fraction form : ....

g. 3.7

Hundredths : ....

In fraction form : ....

h. 10.8

Hundredths : ....

In fraction form : ....

i. 13.2

Hundredths : ....

In fraction form : ....

j. 0.4

Hundredths : ....

In fraction form : ....

k. 3.33

Hundredths : ....

In fraction form : ....

l. 4.15

Hundredths : ....

In fraction form : ....

6. How can you write 18 tenths as a fraction and as a decimal ?

7. How can you write 825 hundredths as a decimal and as a fraction ?

8. Complete.

a. 3.7 = ... tenths.

b. 5.2 = ... hundredths.

c. 198 tenths = ... (as a decimal)

d. 291 hundredths = ... (as a fraction)

e. 3.74 = ... hundredths.

f. 89.5 = ... tenths.

g. 39 tenths = ... (as a decimal)

h. 2.14 = ... (hundredths)

9. Put (✓) to the correct statement and (✗) to the incorrect statement.

a. $7.02 = 7\frac{2}{10}$ ( )

b. $14.80 = 14\frac{8}{10}$ ( )

c. 32 tenths = 3.2 ( )

d. 175 hundredths = 17.5 ( )

e. 8.1 = 81 tenths ( )

f. 30 hundredths = $\frac{30}{10}$ ( )

g. 10.6 = 1060 hundredths ( )

10. Shade the model to show that 6 students out of 10 have cats in their homes.
Represent this quantities as a decimal and as a fraction.

11. • Ayda has a brother of height 50 $\frac{1}{10}$ cm.
Express the height in the form of a decimal ____________

• How can you rewrite 50 $\frac{1}{10}$ cm.
Using tenths only ? ____________

12. • Adam has 1 $\frac{4}{10}$ liters of water.
Express the volume in the form of a decimal ____________

• How can you rewrite 1 $\frac{4}{10}$ using tenths ? ____________

13. Ahmed surveyed 100 students.
Of the 100 students , $\frac{38}{100}$ of them have a dog for pet.

• How many students have a dog ? ____________

• How can you rewrite $\frac{38}{100}$ using hundredths ? ____________

14. Mr. Marawan has 3 full boxes of crayons and $\frac{85}{100}$ of another box of crayons.
Write a decimal to show the total number of boxes of crayons Mr. Marawan has.

____

____

Multiple Choice Questions

Choose the correct answer.

1. 0.2 = ...

A. $\frac{2}{10}$ B. $\frac{2}{100}$

C. $\frac{22}{100}$ D. $\frac{20}{10}$

2. 1.05 = ...

A. $1\frac{5}{10}$ B. $1\frac{5}{100}$

C. $1\frac{50}{100}$ D. $1\frac{15}{100}$

3. $\frac{13}{100}$ = ...

A. 1.3 B. 1.03

C. 0.13 D. 1.30

4. 5.7 = ...

A. $5\frac{7}{100}$ B. $5\frac{70}{100}$

C. $\frac{57}{100}$ D. $7\frac{5}{10}$

5. 8 = ... hundredths.

A. 0.08 B. 8

C. 80 D. 800

6. 7.9 = ... tenths.

A. 0.79 B. 7.9

C. 79 D. 790

7. 17.5 = ... hundredths.

A. 175 B. 1750

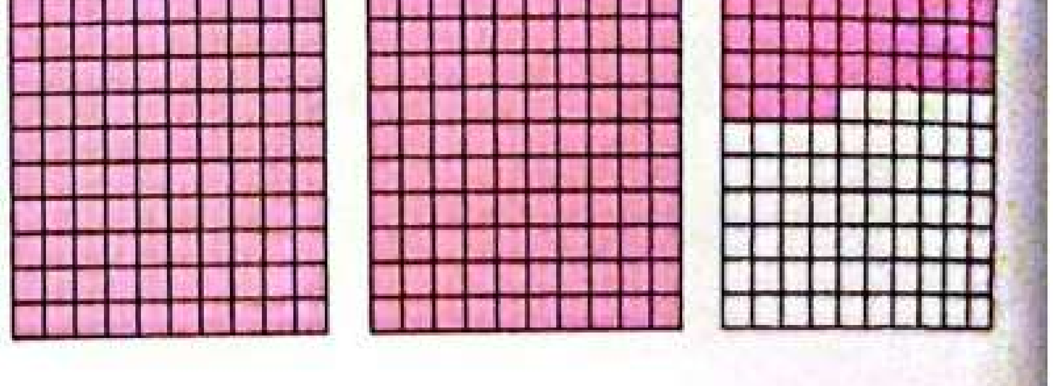
C. 17500 D. 1.75

8. 20.9 = ... tenths.

A. 20.9 B. 2.09

C. 209 D. 2090

9. The fraction that represents the shaded part = ...



A. $\frac{34}{100}$ B. $1\frac{43}{100}$

C. $2\frac{34}{100}$ D. $2\frac{43}{100}$

10. 128 tenths = ...

A. 1.28 B. 12.8 C. 128 D. 1280

10-7 All Things Equal

Learn

- **Equivalent fractions** are fractions that name the same number.

Use models and paper folding to find equivalent fractions.

Are $\frac{2}{10}$ and $\frac{20}{100}$ equivalent fractions

Activity

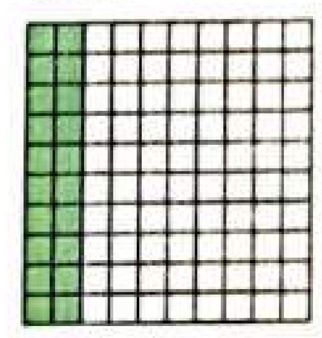
Step 1

Shade $\frac{2}{10}$ of the tenths model and $\frac{20}{100}$ of the hundredths model.

$\frac{2}{10} = 0.2$

Two tenths
2 out of 10

$\frac{20}{100} = 0.20$



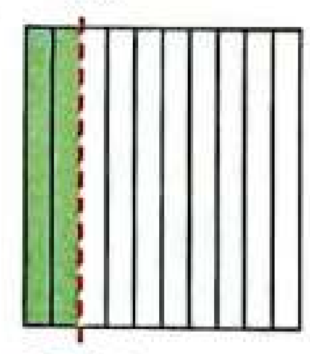
Twenty hundredths
20 out of 100

Step 2

Fold $\frac{2}{10}$ of the tenths model and $\frac{20}{100}$ of the hundredths model.

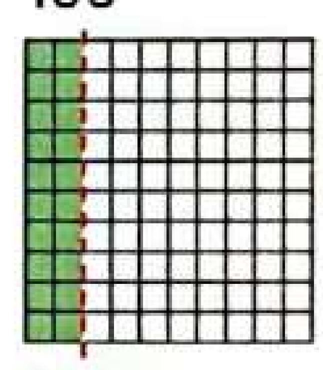
Then compare the models.

$\frac{2}{10} = 0.2$



Fold

$\frac{20}{100} = 0.20$



Fold

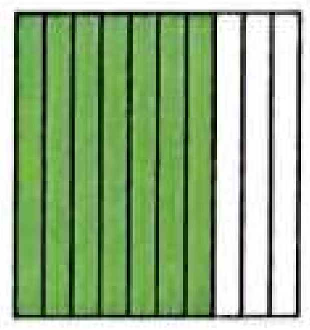
The folded parts of the models are the same size.

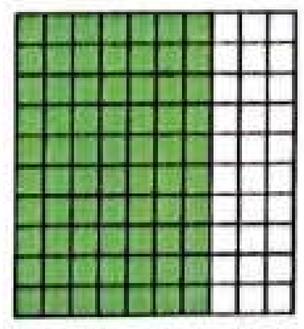
So, $\frac{2}{10}$ and $\frac{20}{100}$ are equivalent fractions and 0.2 and 0.20 are equivalent decimals.

Example 1

Write the equivalent fractions and equivalent decimal to represent the shaded part.

a.



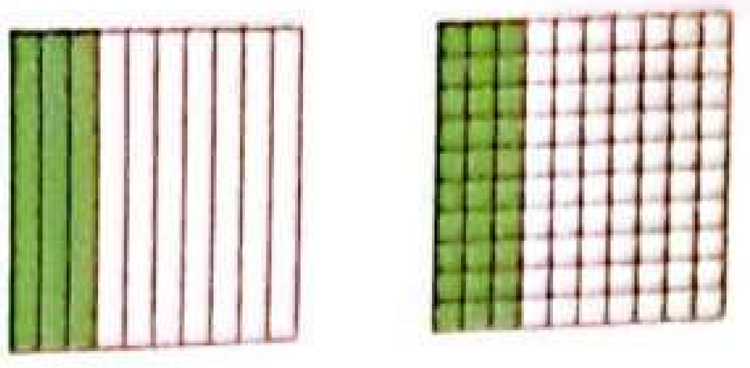


The fractions : $\frac{7}{10}$ = ______________

The decimal : 0.7 = ______________

Notes for parents :

- Remind your child to write a 0 in the hundredths place for decimals given in tenths.

b. 

The fractions : $\frac{30}{100}$ = ...

The decimal : 0.30 = ...

Solution

a. The fraction : $\frac{7}{10} = \frac{70}{100}$

The decimal : 0.7 = 0.70

b. The fraction : $\frac{30}{100} = \frac{3}{10}$

The decimal : 0.30 = 0.3

Example 2

Write the equivalent fraction and equivalent decimal to each of the following.

a. $\frac{60}{100}$ The fraction = ...
The decimal = ...

b. $\frac{9}{10}$ The fraction = ...
The decimal = ...

c. 0.20 The fraction = ...
The decimal = ...

d. 0.1 The fraction = ...
The decimal = ...

Solution

a. $\frac{6}{10}$, 0.6 | b. $\frac{90}{100}$, 0.90 | c. $\frac{2}{10}$, 0.2 | d. $\frac{10}{100}$, 0.10

Check your understanding

Write the equivalent fraction and equivalent decimal to each of the following.

a. $\frac{80}{100}$ The fractions is ....
The decimal is ....

b. $\frac{4}{10}$ The fractions is ....
The decimal is ....

c. 0.50 The fractions is ....
The decimal is ....

d. 0.6 The fractions is ....
The decimal is ....

Notes for parents :

- Ask your child to write $\frac{9}{10}$ in the two ways, once with one decimal place, the other with two decimal places.

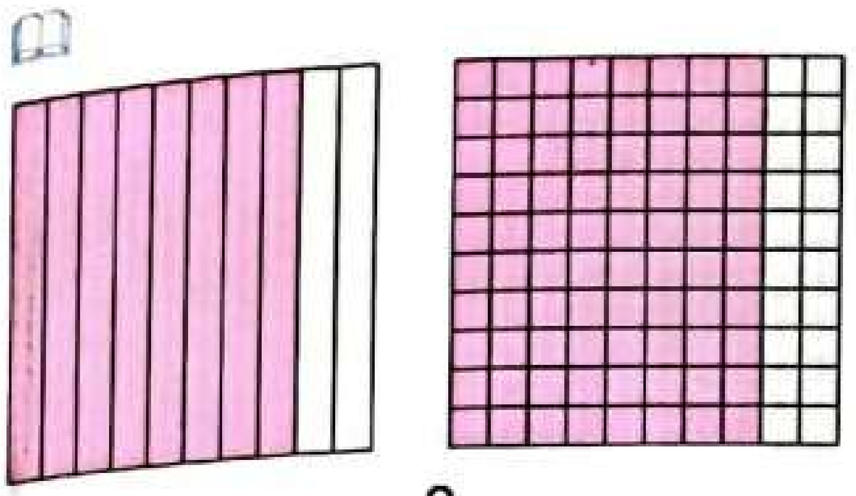
Exercise 20

10-7 All Things Equal

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING 📖 From the school book

1. Create an equivalent model, record its fraction and write as a decimal fraction.

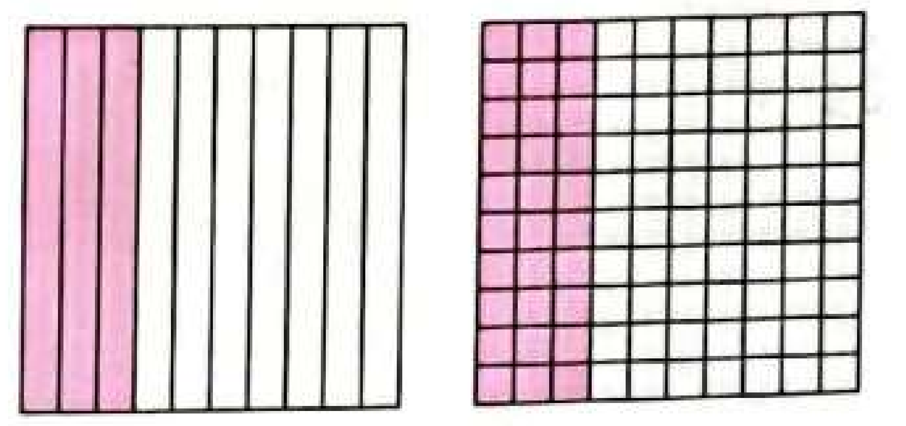
a. 📖



The fractions : $\frac{8}{10}$ = ____________

The decimal : 0.8 = ____________

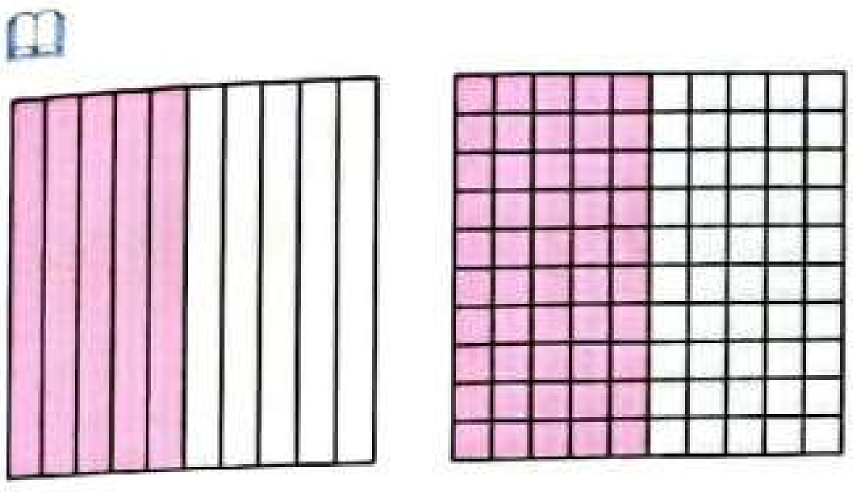
b. 📖



The fractions : $\frac{30}{100}$ = ____________

The decimal : 0.30 = ____________

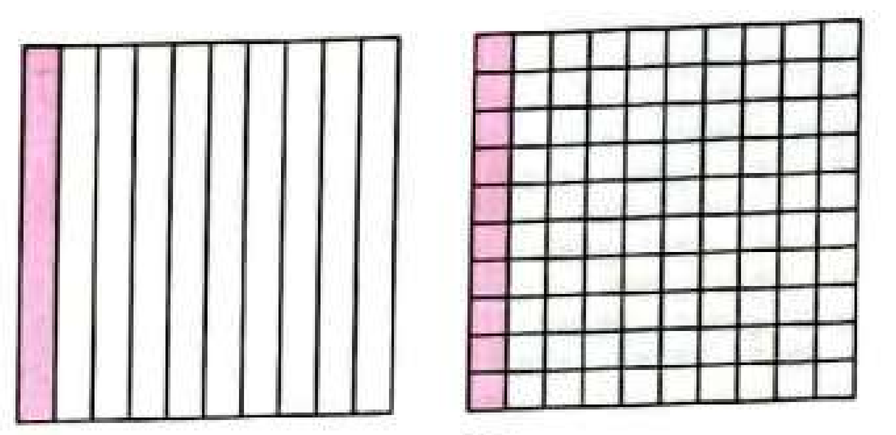
c. 📖



The fractions : $\frac{5}{10}$ = ____________

The decimal : 0.5 = ____________

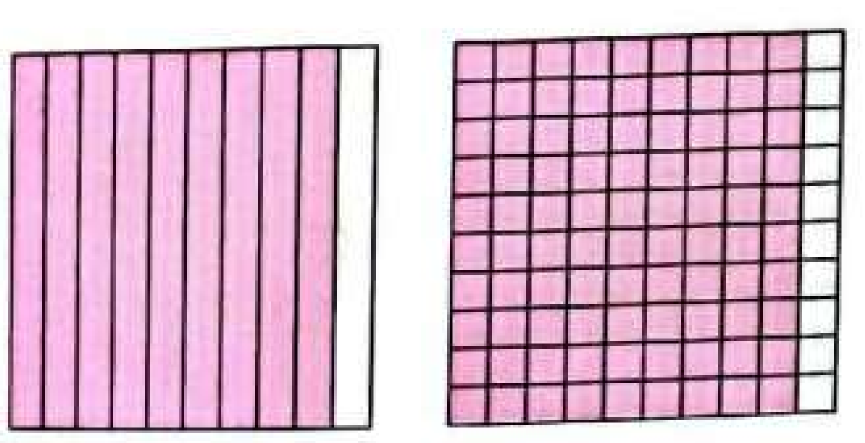
d.



The fractions : $\frac{10}{100}$ = ____________

The decimal : 0.10 = ____________

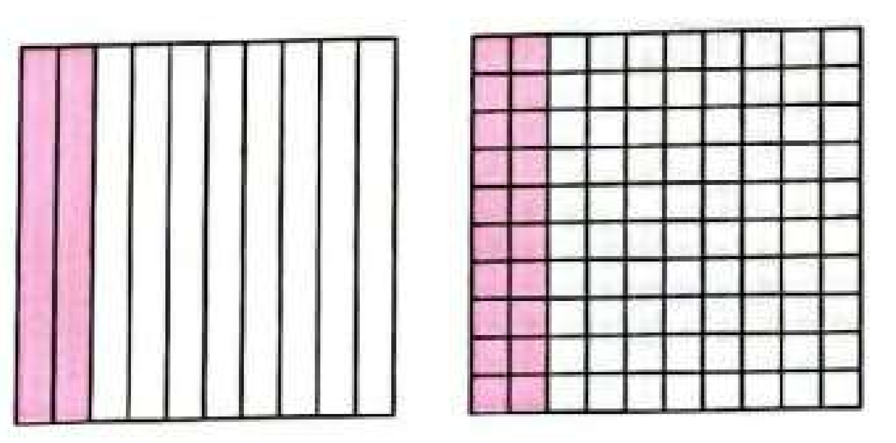
e.



The fractions : ______ = ______

The decimal : ______ = ______

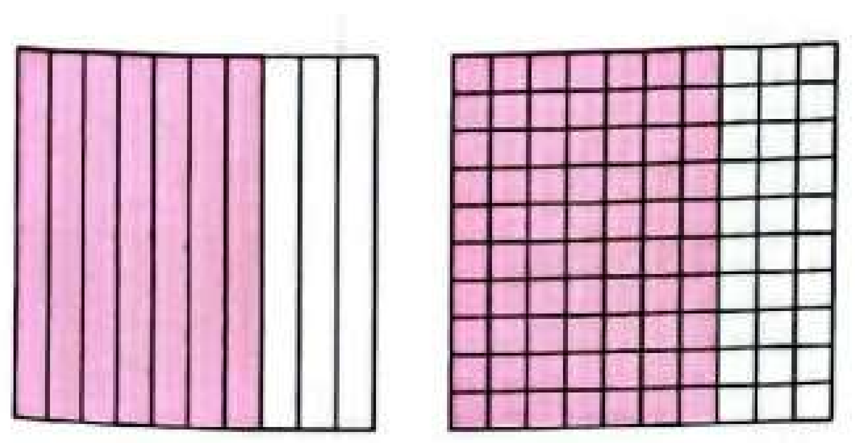
f.



The fractions : ______ = ______

The decimal : ______ = ______

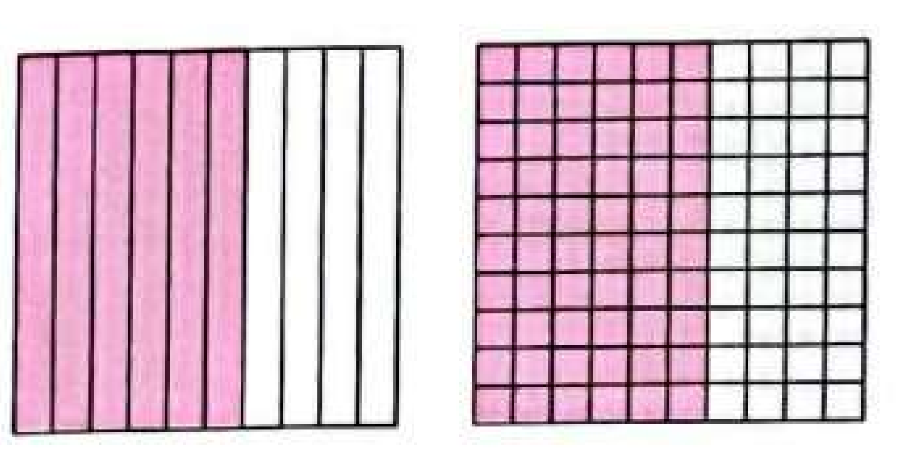
g.



The fractions : ______ = ______

The decimal : ______ = ______

h.



The fractions : ______ = ______

The decimal : ______ = ______

2. Are the two decimals equivalent ? Write equivalent or not equivalent.

a. 0.7 and 0.70 ______

b. 0.04 and 0.4 ______

c. 0.9 and 0.09 ______

d. 0.28 and 0.82 ______

e. 0.17 and 0.07 ______

f. 0.1 and 0.10 ______

3. Write an equivalent decimal for each. You may use decimal models.

a. 0.8 ______

b. 0.7 ______

c. 0.90 ______

d. 0.2 ______

e. 0.5 ______

f. 0.10 ______

g. 0.40 ______

h. 0.6 ______

4. Are the two fractions equivalent ? Write equivalent or not equivalent.

a. $\frac{3}{10}$ and $\frac{30}{100}$ ______

b. $\frac{5}{100}$ and $\frac{50}{10}$ ______

c. $\frac{80}{100}$ and $\frac{8}{10}$ ______

d. $\frac{4}{100}$ and $\frac{4}{10}$ ______

e. $\frac{60}{100}$ and $\frac{6}{10}$ ______

f. $\frac{20}{100}$ and $\frac{2}{100}$ ______

5. Write an equivalent fraction for each.

a. $\frac{7}{10}$ ______

b. $\frac{80}{100}$ ______

c. $\frac{9}{10}$ ______

d. $\frac{4}{10}$ ______

e. $\frac{10}{100}$ ______

f. $\frac{20}{100}$ ______

g. $\frac{3}{10}$ ______

h. $\frac{50}{100}$ ______

6. Record an equivalent fraction and decimal for each problem.

a. $\frac{1}{10}$

The fraction : ______

The decimal : ______

b. $\frac{70}{100}$

The fraction : ______

The decimal : ______

c. $\frac{6}{10}$

The fraction : ______

The decimal : ______

d. 0.4

The fraction : ______

The decimal : ______

e. 0.30

The fraction : ______

The decimal : ______

f. 0.9

The fraction : ______

The decimal : ______

g. $\frac{10}{10}$

The fraction : ____________

The decimal : ____________

h. $1\frac{4}{10}$

The fraction : ____________

The decimal : ____________

i. 2.1

The fraction : ____________

The decimal : ____________

j. $3\frac{30}{100}$

The fraction : ____________

The decimal : ____________

k. $4\frac{2}{10}$

The fraction : ____________

The decimal : ____________

l. 5.70

The fraction : ____________

The decimal : ____________

7. Fill the missing denominator or numerator. Circle the fraction that is more than 1 whole.

a. $\frac{5}{10} = \frac{50}{\square}$

b. $\frac{20}{100} = \frac{\square}{10}$

c. $\frac{4}{10} = \frac{40}{\square}$

d. $\frac{200}{100} = \frac{\square}{10}$

e. $\frac{70}{\square} = \frac{7}{10}$

f. $\frac{80}{10} = \frac{\square}{100}$

g. $\frac{3}{10} = \frac{\square}{100}$

h. $\frac{60}{100} = \frac{\square}{10}$

i. $\frac{7}{10} = \frac{\square}{100}$

j. $\frac{900}{100} = \frac{\square}{10}$

k. $\frac{8}{\square} = \frac{80}{100}$

l. $\frac{10}{100} = \frac{\square}{10}$

8. Put (✓) to the correct statement and (X) to the incorrect one.

a. $\frac{3}{10}$ is equivalent to 0.30 (   )

b. 0.70 is equivalent to $\frac{7}{100}$ (   )

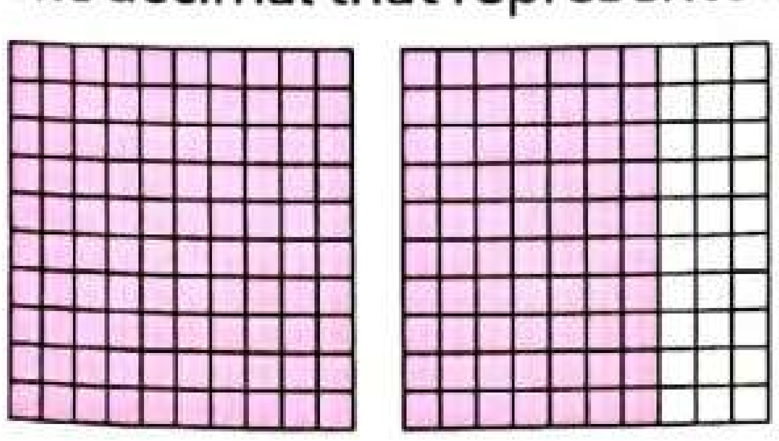
c. $\frac{50}{100} = \frac{50}{10}$ (   )

d. $0.04 = \frac{40}{100}$ (   )

e. 9 tenths is equivalent to $\frac{90}{100}$ (   )

f. 80 hundredths is equivalent to 0.8 (   )

g. The decimal that represented by the shaded part



is 1.7 (   )

9. Mina's family plants a garden on 0.5 feddan of their land.
Write an equivalent decimal and fraction for this amount.

10. Amgad said that 5.20 is greater than 5.2 , because 20 is greater than 2. Was he right ?
Explain.

11. **Join each value written by unit form with its equivalent fraction with its decimal.**

	Unit form	Fraction	Decimal
a.	One tenth	$\frac{4}{10}$	0.03
b.	3 hundredths	$1\frac{6}{10}$	0.7
c.	7 tenths	$\frac{42}{100}$	0.1
d.	4 tenths	$\frac{3}{100}$	1.6
e.	42 hundredths	$\frac{7}{10}$	0.42
f.	One , 6 tenths	$\frac{1}{10}$	0.4

Challenge

12. Make a model to show that 0.8 and 0.80 are equivalent. Explain your model.

Multiple Choice Questions

Choose the correct answer.

1. Which of the following is equivalent to $\frac{6}{10}$?

   A. 0.60 B. 0.06
   C. $\frac{60}{10}$ D. 1.6

2. Which of the following is **NOT** equivalent to $\frac{50}{100}$?

   A. $\frac{5}{10}$ B. 0.5
   C. 0.50 D. 0.05

3. Which fraction is equivalent to 0.3?

   A. $\frac{30}{10}$ B. $\frac{3}{100}$
   C. $\frac{3}{10}$ D. $\frac{300}{100}$

4. Which fraction is equivalent to 0.45?

   A. $\frac{450}{100}$ B. $\frac{450}{10}$
   C. $\frac{45}{10}$ D. $\frac{45}{100}$

5. $\frac{7}{10}$ is equivalent to ______

   A. $\frac{7}{100}$ B. $\frac{70}{100}$
   C. 0.07 D. 7

6. $\frac{90}{100}$ is equivalent to ______

   A. 0.09 B. $\frac{9}{10}$
   C. $\frac{9}{100}$ D. $\frac{900}{100}$

7. $3\frac{7}{10}$ is equivalent to ______

   A. 0.37 B. 3.07
   C. 3.70 D. 37

8. 8 tenths is equivalent to ______

   A. 0.08 B. $\frac{80}{10}$
   C. $\frac{8}{100}$ D. $\frac{80}{100}$

9. Which of the following is greater than 1?

   A. $\frac{300}{100}$ B. $\frac{30}{100}$
   C. $\frac{3}{10}$ D. 0.30

10. Which of the following is smaller than 1?

    A. $\frac{400}{100}$ B. $\frac{30}{10}$
    C. $\frac{70}{100}$ D. $\frac{50}{10}$

11. 70 tenths is equivalent to ______

    A. 0.7 B. 0.07
    C. 0.70 D. 7

12. Which of the following is NOT equivalent to $1\frac{10}{100}$?

    A. 1.1 B. 1.10
    C. 1.01 D. $1\frac{1}{10}$

Concept 3

Working with Decimals

Fast Fact

Female kangaroos sport a pouch on their belly (made by a fold in the skin) to cradle baby kangaroos , called joeys. Newborn joeys are tiny , measuring just 2.5 centimetres , or about the size of a grape - cute!

Concept Overview

In concept 3 :

Working with Decimals , students compare decimals using models. Next , they compare decimals that do not have the same number of digits and compare decimals and fractions with 10 or 100 as the denominator. They add fractions with related denominators (Tenths and Hundredths) using models. Finally , they learn to find a common denominator to add unlike Tenths and Hundredths fractions.

Lesson No.	Lesson Name	Vocabulary	Learning Objectives
Lesson 5	10-8 Model Comparisons	Review vocabulary as needed.	• Students will use models to compare decimals.
	10-9 Not All Digits Are Equal	Review vocabulary as needed.	• Students will compare decimals that have a different number of digits.
	10-10 Comparing Tenths and Hundredths	Review vocabulary as needed.	• Students will compare decimals with fractions that have 10 or 100 as the denominator.
Lesson 6	10-11 Check the Denominators	Common denominator	• Students will use models to add two fractions with related denominators.
	10-12 Putting the Pieces Together	Equivalence - Equivalent	• Students will add two fractions with related denominators.

Lesson
5

10-8 Model Comparisons
10-9 Not All Digits Are Equal
10-10 Comparing Tenths and Hundredths

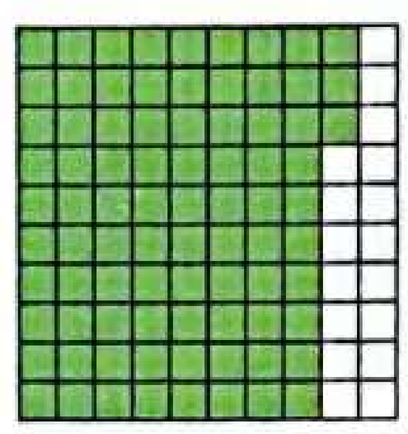
Learn Comparing using models

Sara lives 0.83 kilometers from the sports clup.

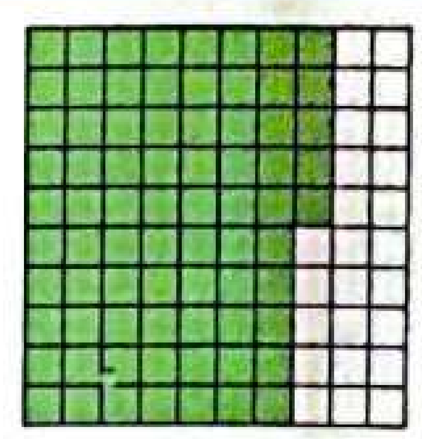
Shady lives 0.75 kilometers from the same clup.

Who lives the least distance from the clup ?

You can use models to compare decimals



0.83



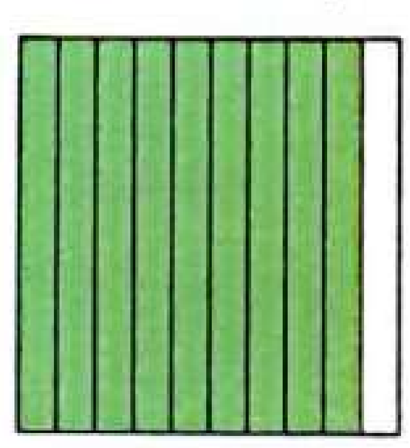
0.75

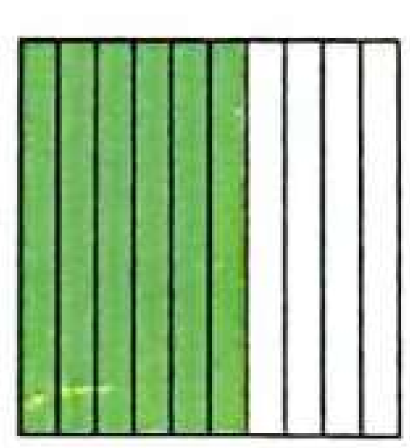
Since , the model for 0.75 has less shaded squares.

$$0.83 > 0.75$$

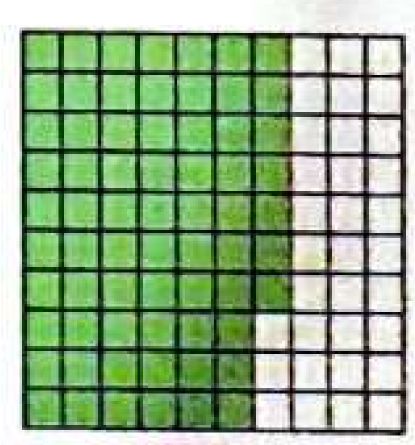
So , Shady lives the least distance from the clup.

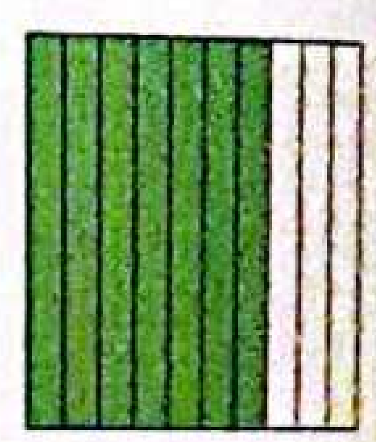
More Examples :





0.9 $>$ 0.6





0.67 $<$ 0.7

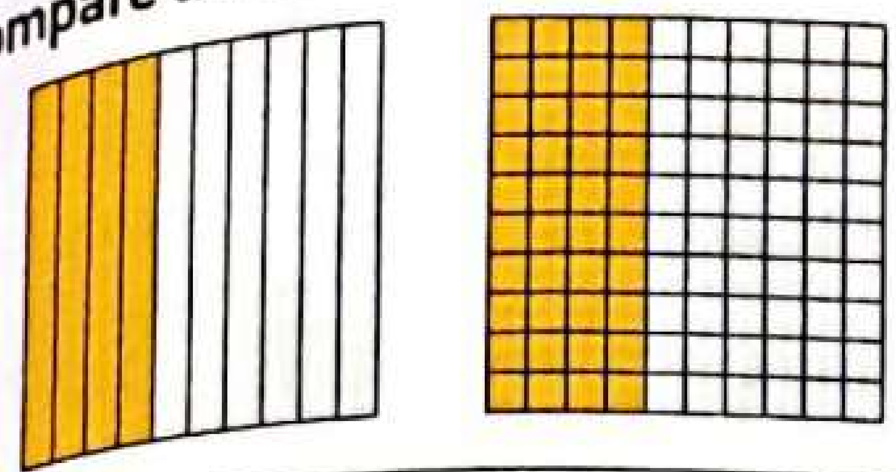
Notes for parents :

- Make sure your child use the models in a correct way. He/she should use models of the same size.

Example 1

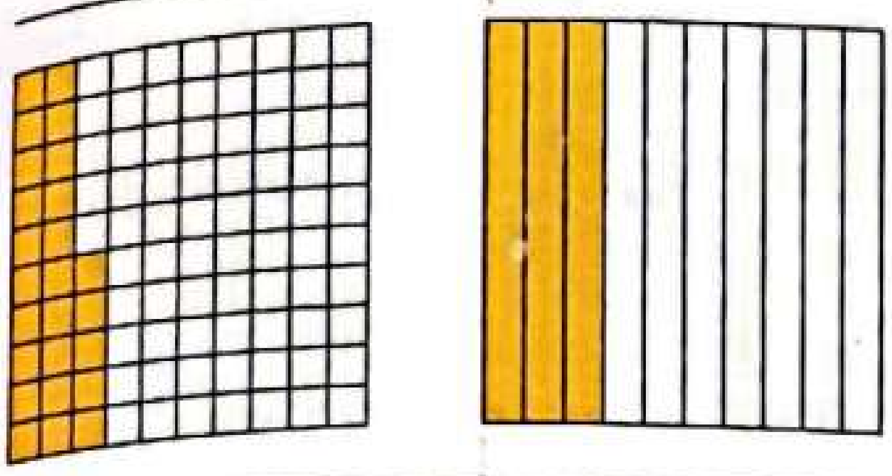
Write the decimal for each model and use "> or < or =" to write numerical statement to compare the decimals.

a.



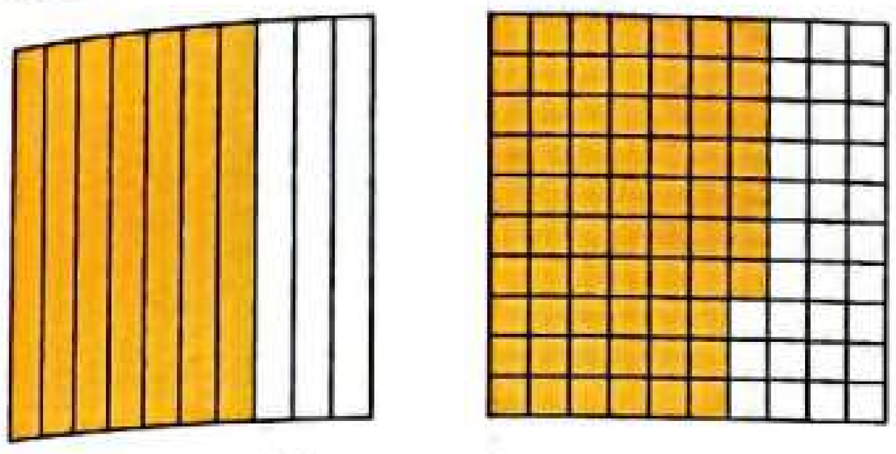
- The decimals : .... , ...
- The numerical statement that represent the comparing : ....

b.



- The decimals : .... , ...
- The numerical statement that represent the comparing : ....

c.



- The decimals : .... , ...
- The numerical statement that represent the comparing : ....

Solution

a. 0.4 , 0.40

0.4 = 0.40

b. 0.25 , 0.3

0.25 < 0.3

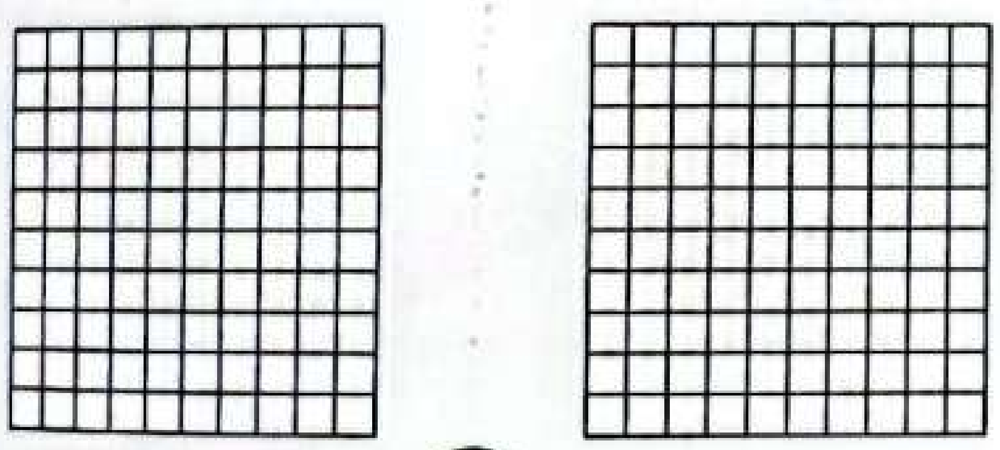
c. 0.7 , 0.67

0.7 > 0.67

Check your understanding

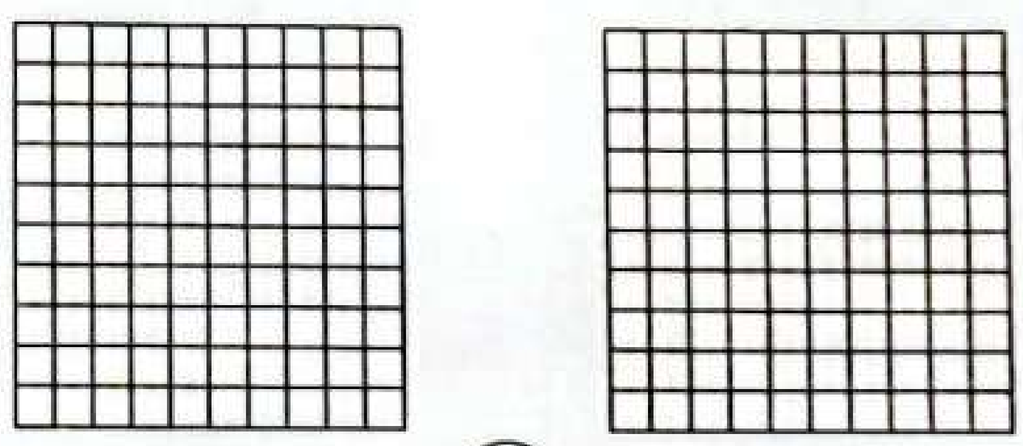
Shade the model as a decimal , then compare write "> or < or =" using models.

a.



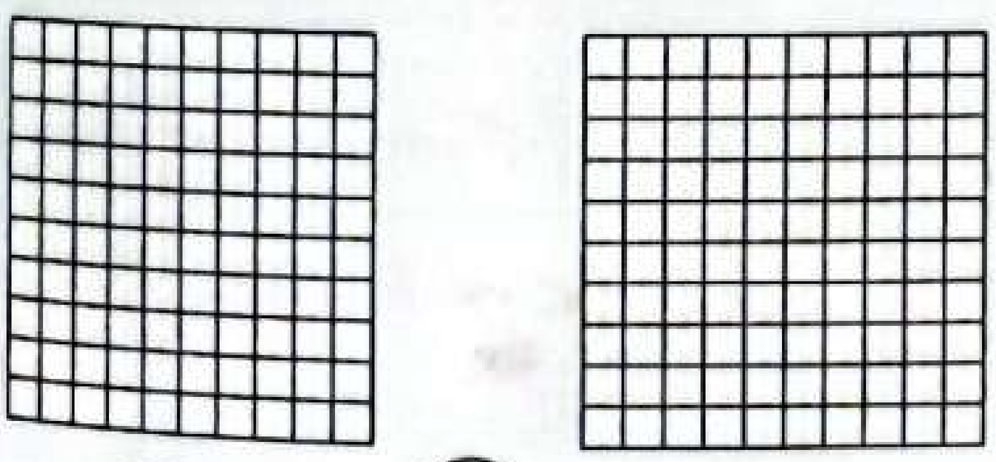
0.2 ◯ 0.31

b.



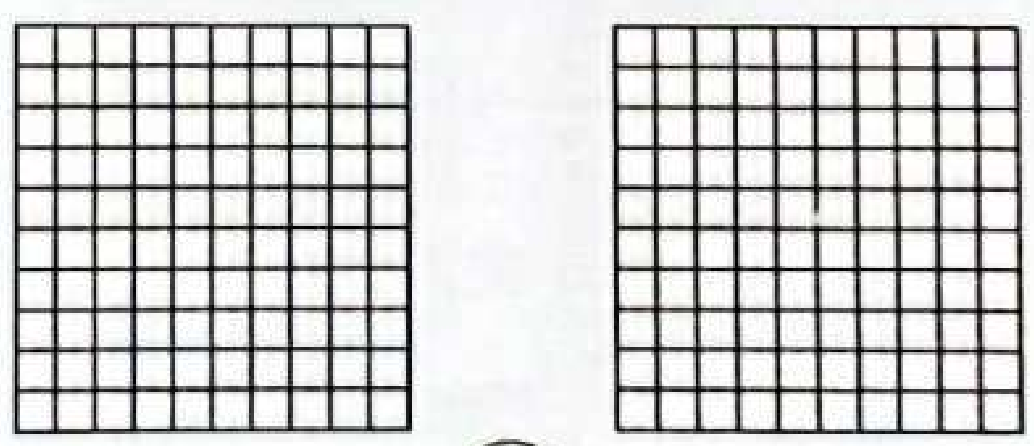
0.11 ◯ 0.2

c.



0.71 ◯ 0.17

d.



0.3 ◯ 0.30

• Ask your child how he/she can use models to compare 0.3 and 0.30

Learn Decimals with different digits.

• You can use place value charts to compare decimals.

Examples

Compare 0.36 and 0.56

Ones	·	Tenths	Hundredths
0	·	3	6
0	·	5	6

• Begin with the digit in the greatest place value.

• **Compare ones :** 0 ones = 0 ones

• **Compare tenths :** 3 tenths < 5 tenths

So, 0.36 (<) 0.56

Compare 0.6 and 0.06

Ones	·	Tenths	Hundredths
0	·	6	0
0	·	0	6

• Begin with the digit in the greatest place value.

• **Compare ones :** 0 ones = 0 ones

• **Compare tenths :** 6 tenths > 0 tenths

So, 0.6 (>) 0.06

Example 2

Use place value chart to compare the following decimals.

a. 1.42 and 1.25 | b. 1.7 and 1.73 | c. 2.8 and 2.80

Solution

a.

Ones	·	Tenths	Hundredths
1	·	4	2
1	·	2	5

1 = 1 4 > 2

Since, 4 > 2 So, 1.42 (>) 1.25

b.

Ones	·	Tenths	Hundredths
1	·	7	0
1	·	7	3

1 = 1 7 = 7 0 < 3

Since, 0 < 3 So, 1.7 (<) 1.73

c.

Ones	·	Tenths	Hundredths
2	·	8	0
2	·	8	0

2 = 2 8 = 8 0 = 0

So, 2.8 (=) 2.80

Notes for parents :

• Remind your child to begin comparing with the greatest place value.

Example 3

Compare 2.15 and 2.17

Solution

To compare 2.15 and 2.17, follow the following steps:

Step 1	Step 2	Step 3
Compare the ones	Compare the tenths	Compare the hundredths
2.15 ↓ 2.17	2.15 ↓ 2.17	2.15 ↓ 2.17
The same number of ones	The same number of tenths	5 (<) 7

So, 2,15 (<) 2,17

Check your understanding

1. Use place value chart to compare each of the following two decimals.

a. 0.37 and 0.7

Ones	·	Tenths	Hundredths

____

b. 0.35 and 0.29

Ones	·	Tenths	Hundredths

____

c. 0.80 and 0.09

Ones	·	Tenths	Hundredths

____

d. 0.6 and 0.60

Ones	·	Tenths	Hundredths

____

2. Compare. Write "> or < or =".

a. 0.52 ◯ 0.54 b. 0.9 ◯ 0.82 c. 1.52 ◯ 1.45

d. 3.7 ◯ 3.70 e. 3.4 ◯ 4.56 f. 2.05 ◯ 2.15

• Remind your child to begin comparing with the greatest place value.

Learn Comparing tenths and hundredths

- You can compare decimals in different forms.
- Compare $5\frac{62}{100}$ and 5.47

Rewrite $5\frac{62}{100}$ as a decimal.

$5\frac{62}{100} = 5.62$

Ones	.	Tenths	Hundredths
5	.	6	2
5	.	4	7

$5.62 > 5.47$

- Begin with the digit in the greatest place value.
- **Compare the ones :** 5 ones = 5 ones
- **Compare the tenths :** 6 tenths > 4 tenths

So, 5.62 is greater than 5.47

Example 3

Compare using "> or < or =".

a. 0.37 $\square$ $\frac{4}{10}$

b. 1.02 $\square$ $\frac{102}{100}$

c. 24 tenths $\square$ 0.24

d. 2 Ones , 5 Tenths $\square$ 2.05

e. 3.00 $\square$ $\frac{30}{100}$

Solution

a. Since , $\frac{4}{10} = 0.4$ So, $0.37 < 0.4$

b. Since , $\frac{102}{100} = 1.02$ So, $1.02 = 1.02$

c. Since , 24 tenths = 2.4 , So, $2.4 > 0.24$

d. $2.5 > 2.05$

e. $3.00 > 0.30$

Check your understanding

Compare using "> or < or =".

a. $3 + 0.1 + 0.07$ $\bigcirc$ 3.2

b. 5 hundredths $\bigcirc$ 0.50

c. 9.01 $\bigcirc$ $8\frac{92}{100}$

d. 4 ones , 3 tenths , 1 hundredths $\bigcirc$ 4.31

Notes for parents :

- Ask your child how is comparing decimals like comparing whole numbers.

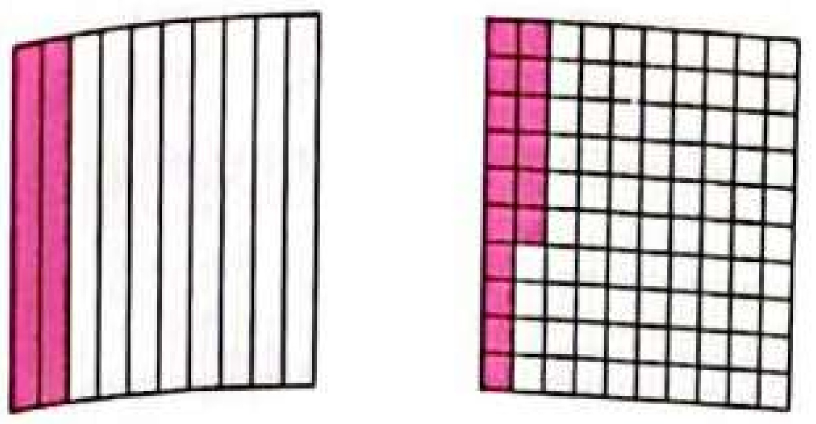
Exercise 21

10-8 Model Comparisons
10-9 Not All Digits Are Equal
10-10 Comparing Tenths and Hundredths

● REMEMBER ● UNDERSTAND ○ APPLY ⁂ PROBLEM SOLVING 📖 From the school book

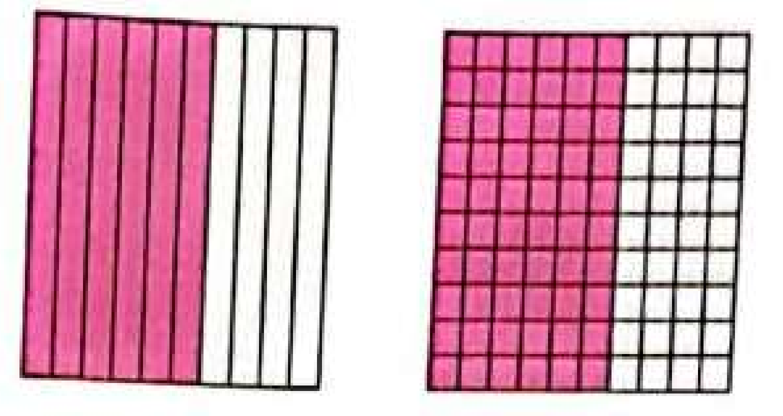
1. Write the decimal for each model and compare using "> or < or =".

a.



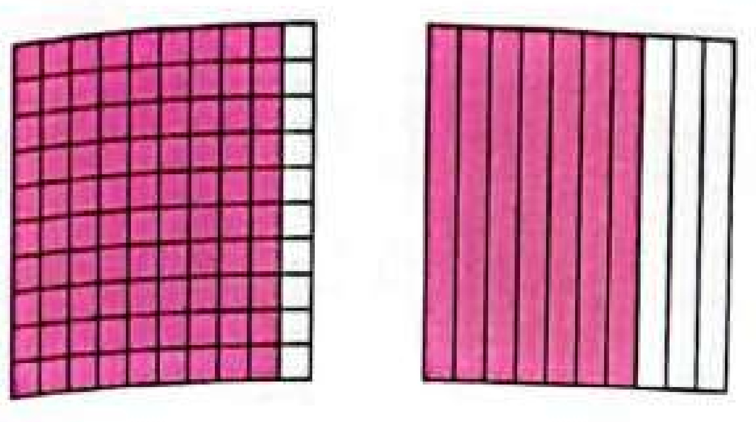
______ ◯ ______

b.



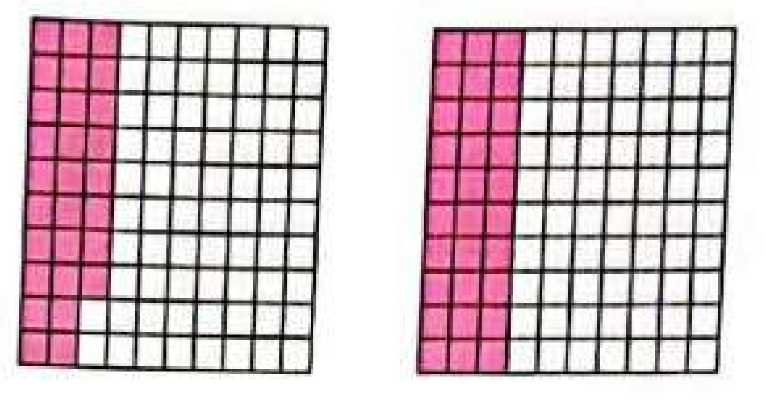
______ ◯ ______

c.



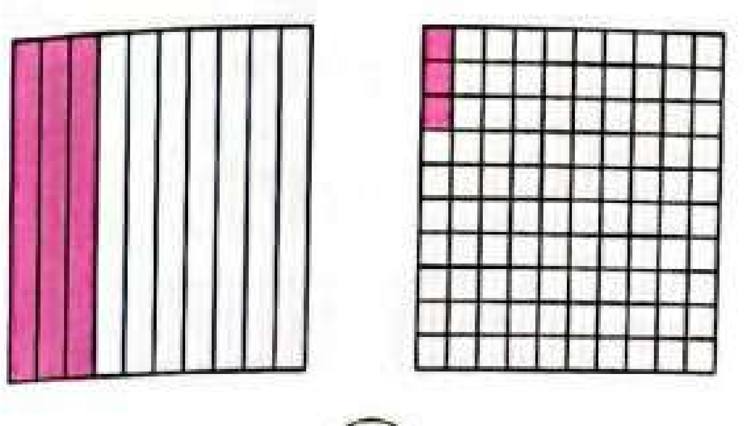
______ ◯ ______

d.



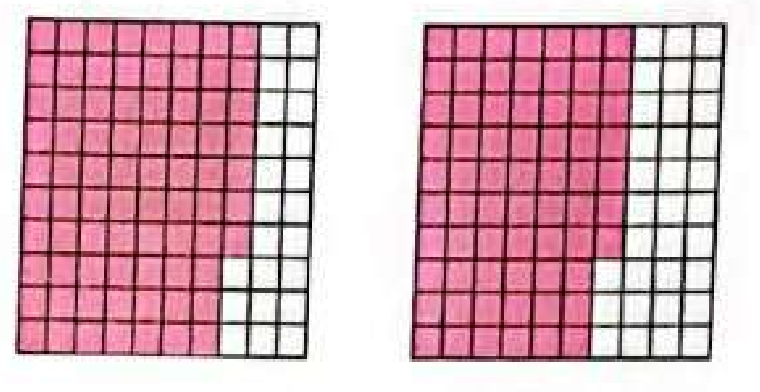
______ ◯ ______

e.



______ ◯ ______

f.



______ ◯ ______

2. 📖 Rewrite the decimals in the chart. Use the symbols "> , < or =".

a. 0.34 ______ 0.4

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

b. 0.45 ______ 0.04

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

c. 0.23 ______ 0.3

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

d. 0.54 ______________ 0.45

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

e. 0.62 ______________ 0.26

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

f. 0.80 ______________ 0.09

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

g. 0.73 ______________ 0.69

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

h. 0.10 ______________ 0.1

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

i. 0.49 ______________ 0.04

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

j. 0.27 ______________ 0.7

Ones	Decimal point	Tenths	Hundredths
___	.	___	___
___	.	___	___

3. Use "> or < or =" to compare.

a. 0.2 ◯ 0.13

d. 0.30 ◯ 0.3

g. 0.18 ◯ 0.4

b. 0.31 ◯ 0.13

e. 0.35 ◯ 0.3

h. 0.60 ◯ 0.8

c. 0.34 ◯ 0.04

f. 0.7 ◯ 0.68

i. 0.07 ◯ 0.7

j. 0.26 ◯ 0.2

k. 1.37 ◯ 1.5

l. 2.31 ◯ 1.99

m. 5 ◯ 3.74

n. 2.31 ◯ 2.08

o. 10.3 ◯ 1.03

p. 3.4 ◯ 34

q. 9.7 ◯ 9.35

r. 4.8 ◯ 0.48

4. Compare the numbers using "> or < or =":

a. $\frac{24}{100}$ ◯ 0.6

b. 3.72 ◯ $3\frac{7}{100}$

c. $\frac{6}{10}$ ◯ 0.34

d. $\frac{134}{100}$ ◯ 1.03

e. $\frac{200}{100}$ ◯ 0.20

f. 1.04 ◯ 98 tenths

g. 3 hundredths ◯ 2 tenths

h. 0.23 ◯ $\frac{23}{10}$

i. $\frac{8}{10}$ ◯ 0.79

j. 7 tenths ◯ 0.7

k. $\frac{50}{100}$ ◯ 5.00

l. 3.7 ◯ $3\frac{17}{100}$

m. 2.07 ◯ 2 Ones , 7 Tenths

n. $\frac{9}{10}$ ◯ 0.89

o. 3 hundredths ◯ $\frac{30}{100}$

p. 0.42 ◯ $\frac{4}{10}$

q. 8.21 ◯ $8\frac{13}{100}$

r. 38 hundredths ◯ 324 tenths

s. $7\frac{2}{100}$ ◯ 3.08

t. 0.37 ◯ 24 tenths

5. Put (✓) to the correct statement and (✗) for the incorrect one.

a. $7.35 > 7.8$ [ ]

b. $4.32 < 4.5$ [ ]

c. $0.9 = 0.90$ [ ]

d. $0.03 > 0.3$ [ ]

e. $5.55 < 55.5$ [ ]

f. $4\frac{23}{100} > 4.32$ [ ]

g. $\frac{500}{100} > 2.79$ [ ]

h. 6.08 < 6 Ones , 7 Tenths [ ]

i. 5 Ones , 5 Tenths = 5.5 [ ]

j. 39 tenths = 390 hundredths [ ]

k. 83 tenths < 83 hundredths [ ]

l. 1.7 is smaller than 1.69 [ ]

6. **Circle all the decimal numbers greater than 3.2**

2.3 , 3.52 , 3.20 , 3.3 , 2.99 , 3.02 , 3.9

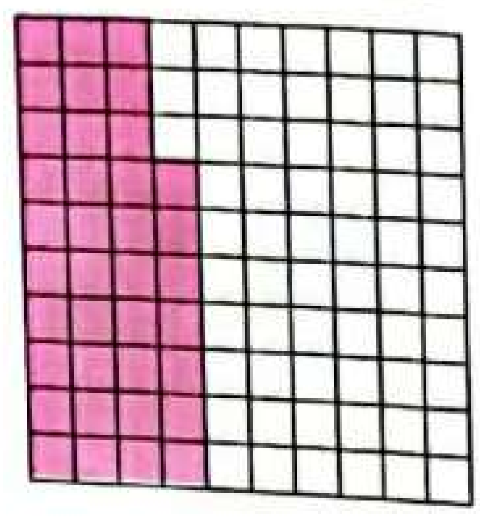
7. **Circle all the decimal numbers smaller than 2.3**

3.2 , 2.1 , 2.30 , 4.01 , 0.7 , 2.99 , 2.03

8. Hatem thinks that his tenth model is bigger than Ezz's model, because Hatem has more colored squares than Ezz, notice the two models and explain if Hatem is right or wrong, then determine the greater decimal giving your reasons.

Ezz models

Hatem models



9. What was the time for the faster runner?

100 Meter DASH	
Runner	Time (in seconds)
Farida	6.50
Petra	6.45

10. Ahmed ran 1.65 kilometers during track practice and Youssef ran 1.68 kilometers.

Who ran the greater distance?

11. Use the table to complete the chart and answer the questions.

Bag of figs 1.3 Kg	Mangoes 2.01 Kg	Plums 1.21 Kg	Pomegranates 2.25 Kg

- Record the mass of each fruit in the place value chart.

Fruit	Ones	Decimal	Tenths	Hundredths
Fig				
Mangoes				
Plums				
Pomegranates				

a. Which item weighs the least ? ____________

b. Which item weighs the most ? ____________

c. Which items weigh more than the Plums ? ____________

d. Which items weigh less than Mango ? ____________

Fill in the blanks to make a true statement.

e. ____________ > ____________ f. ____________ < ____________

12. Which cumin box is greater, first box of mass 0.5 kilogram or second box of mass 0.25 kilogram ?

13. Adam is plotting what he passes on the way to school on the number line. Number the line in tenths using fractions (above the line) and decimals (below the line). Then , plot the following on the number line :

- Omar's house : $\frac{3}{10}$ kilometer.
- Corner Store : 0.8 kilometer.
- Street light : $\frac{1}{10}$ kilometers.
- Sara's house : 0.6 kilometer.
- A brown house : 0.3 kilometer.
- A coffee shop : 0.7 kilometers.
- A yellow house : $\frac{6}{10}$ kilometer.
- A park : 1.0 kilometer.

a. Which is further from Adam's house :
   Sara's house or Omar's ? ....

b. When Adam is walking to school, does he pass the coffee shop or the corner store first ?

c. Who lives in the brown house ? ....

d. Who lives in the yellow house ? ....

e. How far is the street light from Omar's house ? ....

---

14. Maisa went to the supermarket and saw two bottles of olive oil. The first one contained $\frac{5}{10}$ liters of olive oil, and the second one contained 0.73 liters of olive oil. Which bottle contained more olive oil ? How do you know ? Use words, numbers or pictures your thinking.

---

15. Amal ate 0.6 of her food. Her brother ate $\frac{4}{10}$ of his food. Who ate more ?

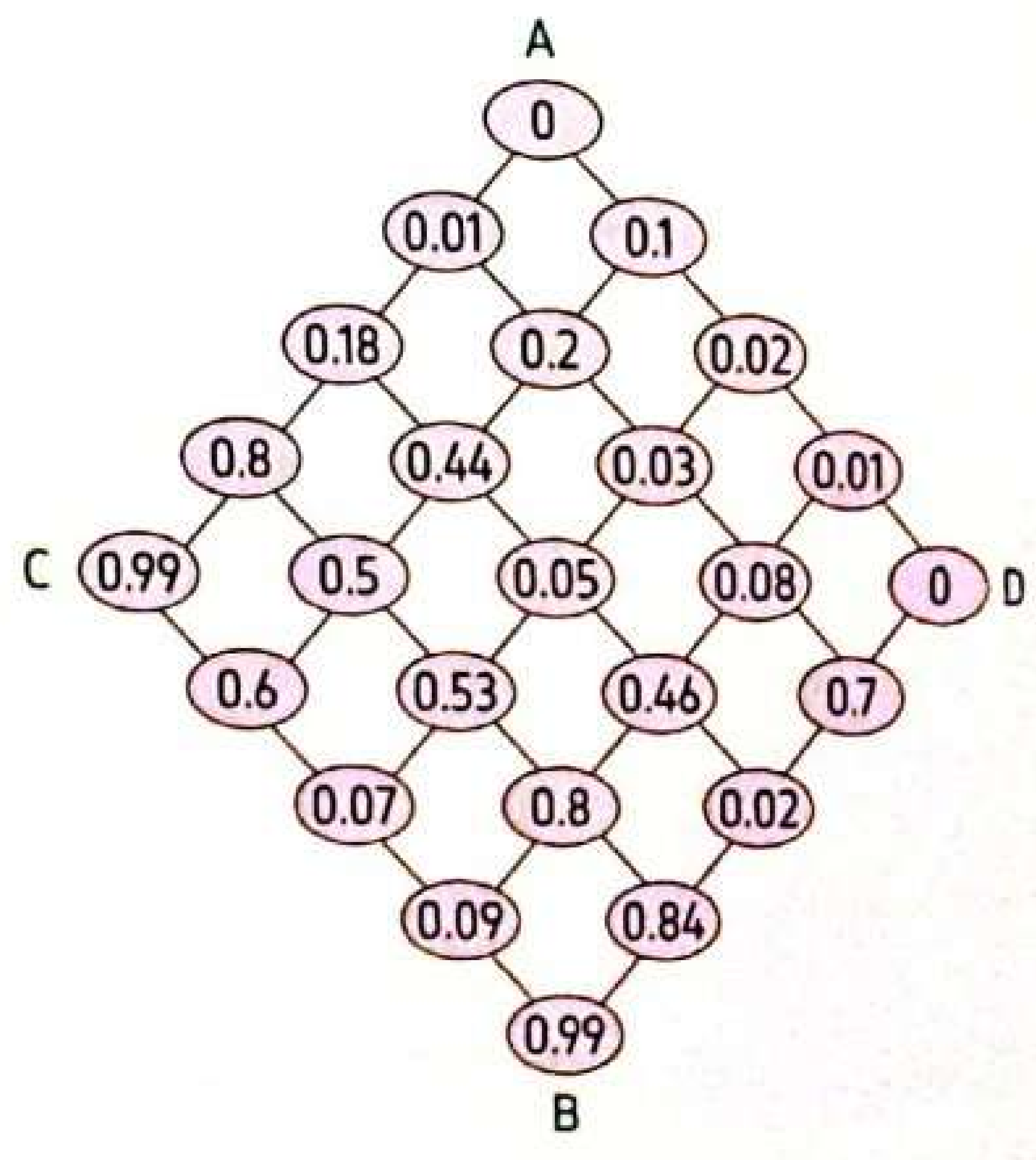
---

16. The distance between Badr home and supermarket is 0.44 kilometer and the distance between Faten home and supermarket is $\frac{40}{100}$ kilometer.
Who is walking greater distance to go a supermarket ?

Challenge

17. 1. On the worksheet, trace a path through the maze from A to B. For each step, move to a number of greater value.

2. On the worksheet, trace a path through the maze from C to D. For each step, move to a number of lesser value.



Multiple Choice Questions

Choose the correct answer.

1. $7.2 \bigcirc 7.15$
   A. $>$ B. $<$ C. $=$

2. $2.4 \bigcirc 2\frac{42}{100}$
   A. $>$ B. $<$ C. $=$

3. $\frac{125}{100} \bigcirc 1.3$
   A. $>$ B. $<$ C. $=$

4. Which of the following is greater than 1.64 ?
   A. 1.7   B. 1.5
   C. 1.47   D. 1.08

5. Which of the following is greater than 0.25 ?
   A. 0.22   B. $\frac{13}{100}$
   C. 0.4   D. 15 hundredths

6. Which of the following is smaller than $\frac{36}{100}$?
   A. $\frac{4}{10}$ B. 0.7
   C. 0.53   D. 0.23

7. $3.74 \bigcirc \frac{374}{100}$
   A. $>$ B. $<$ C. $=$

8. 17 hundredths ◯ 17 tenths.
   A. $>$ B. $<$ C. $=$

9. $12.\square6 < 12.67$
   A. 6   B. 7
   C. 8   D. 9

10. 3.07 ◯ 3 Ones , 7 Tenths.
    A. $>$ B. $<$ C. $=$

11. Which of the following is NOT true ?
    A. $7.32 < 7.4$ B. $3.78 > 3.54$
    C. $0.01 < 0.1$ D. $\frac{13}{10} > 3.1$

12. Which of the following is true ?
    A. $0.53 > 0.55$ B. $0.03 > 0.3$
    C. $1.1 > 0.99$ D. $4.8 < 4.75$

Lesson 6

10 - 11 Check the Denominators
10 - 12 Putting the Pieces Together

Learn Check the denominators

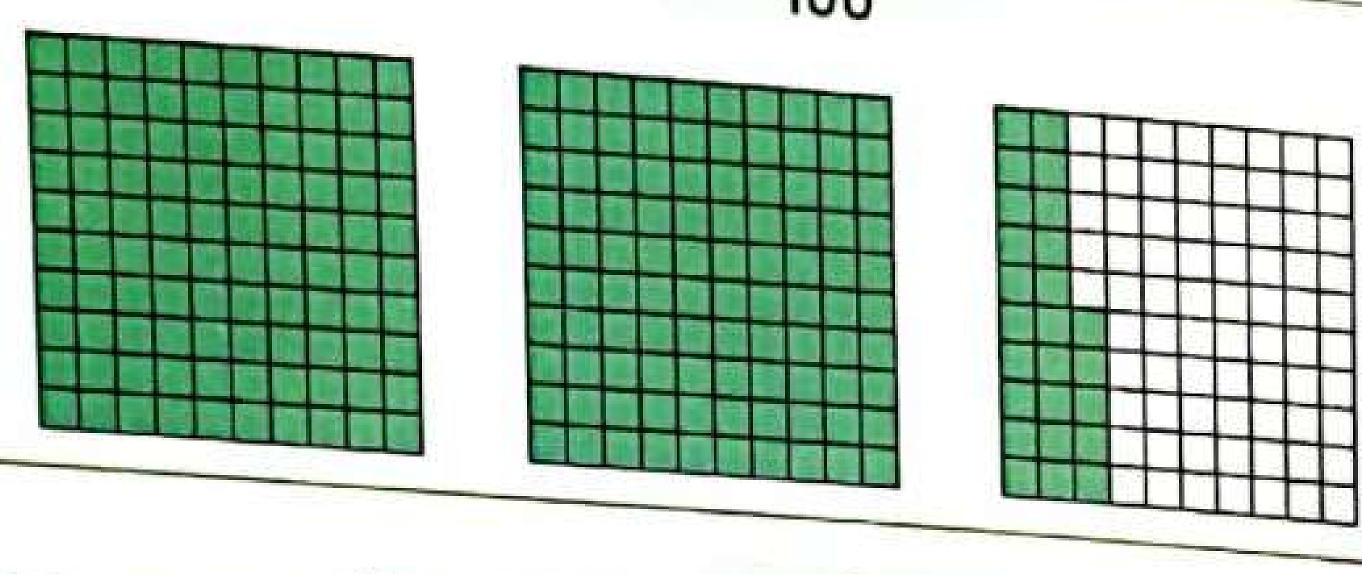
• You can use models to add two fractions with related denominators.

Problem

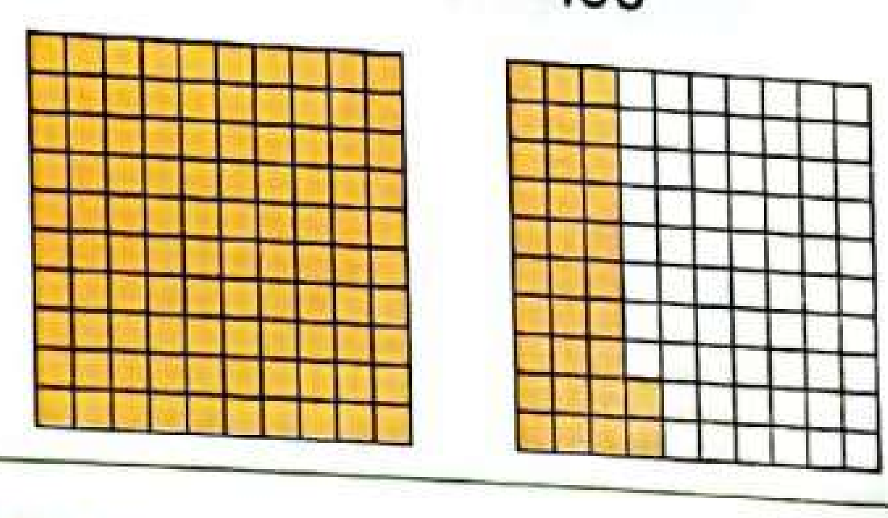
Andy and some friends went cross-country skating, they covered $2\frac{25}{100}$ kilometers in the first day and $1\frac{32}{100}$ in the second day. What is the distance that they covered in the two days?

You can use models to find the answer.

First day $2\frac{25}{100}$ km

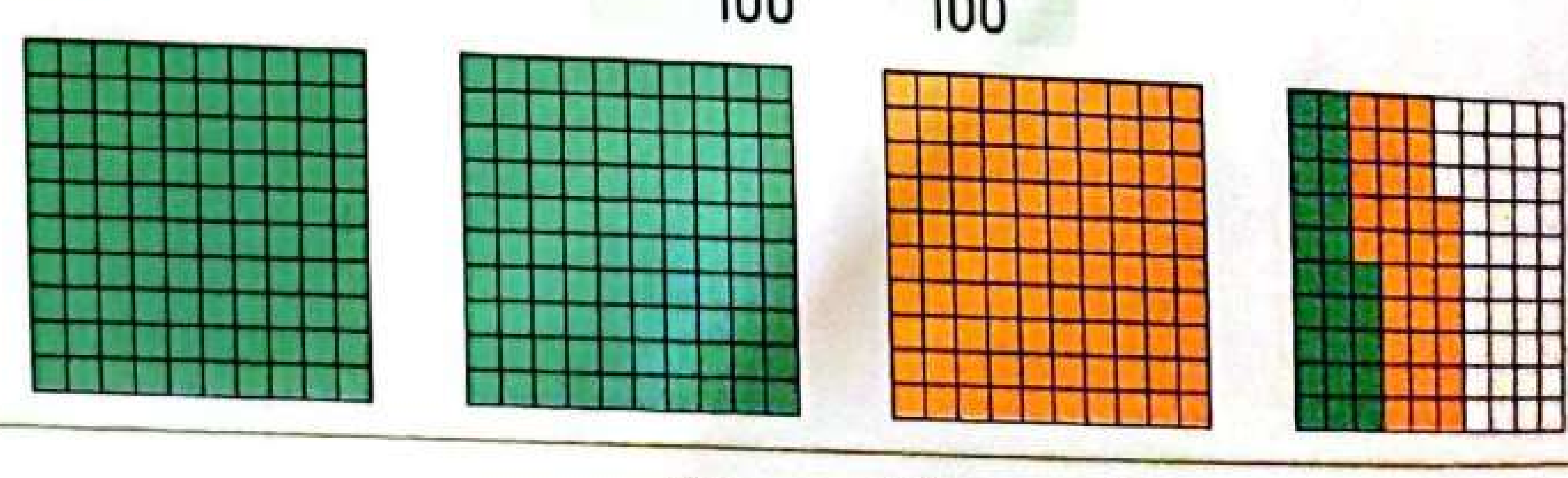


Second day $1\frac{32}{100}$ km



The distance they covered in the two days

$2\frac{25}{100} + 1\frac{32}{100}$



So, $2\frac{25}{100} + 1\frac{32}{100} = 3\frac{57}{100}$

Notes for parents :

• Help your child use models to add two fractions with related denominators.

Example 1

Find the result.

a. $\frac{3}{10} + \frac{4}{10}$

b. $\frac{2}{10} + \frac{38}{100}$

c. $\frac{37}{100} + \frac{83}{100}$

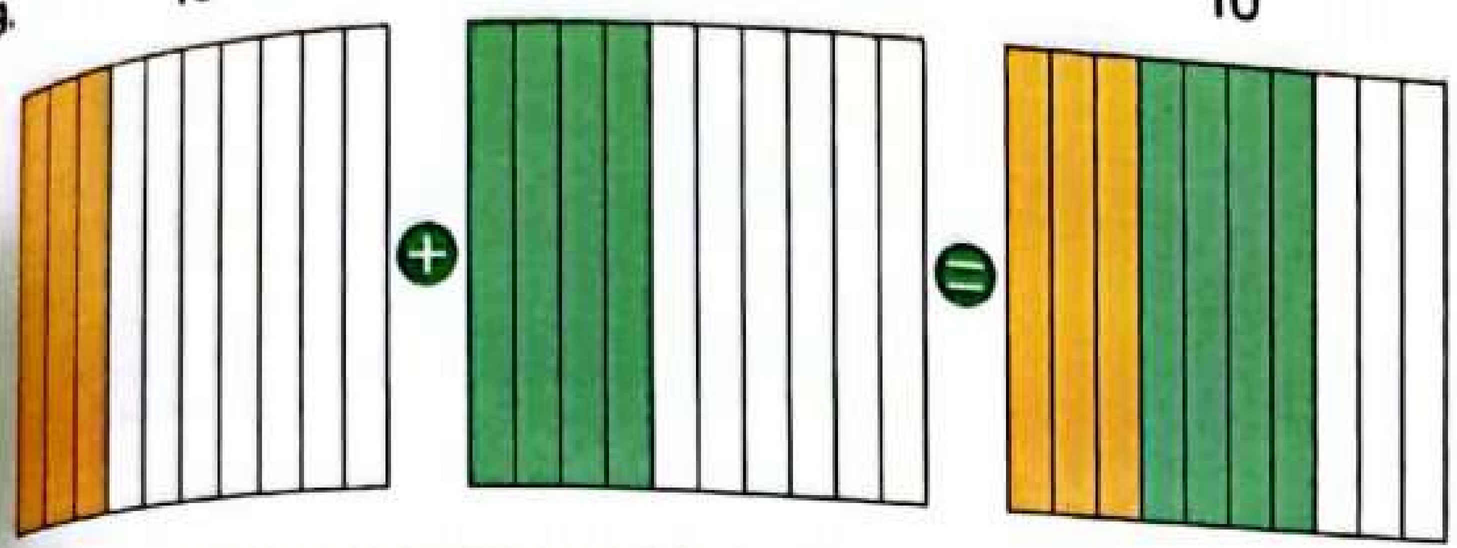
d. $\frac{3}{10} + \frac{4}{10} + \frac{8}{10}$

e. $2\frac{1}{10} + 1\frac{1}{100}$

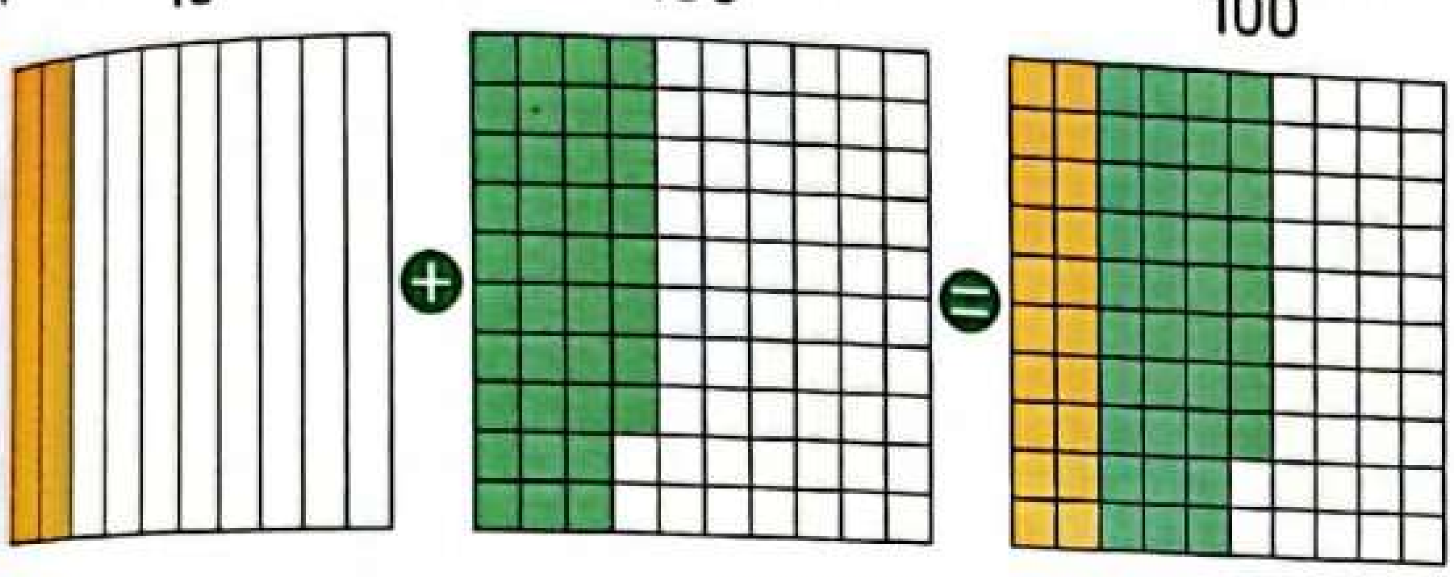
f. $\frac{7}{10} + \frac{87}{100}$

Solution

a. $\frac{3}{10} + \frac{4}{10} = \frac{7}{10}$



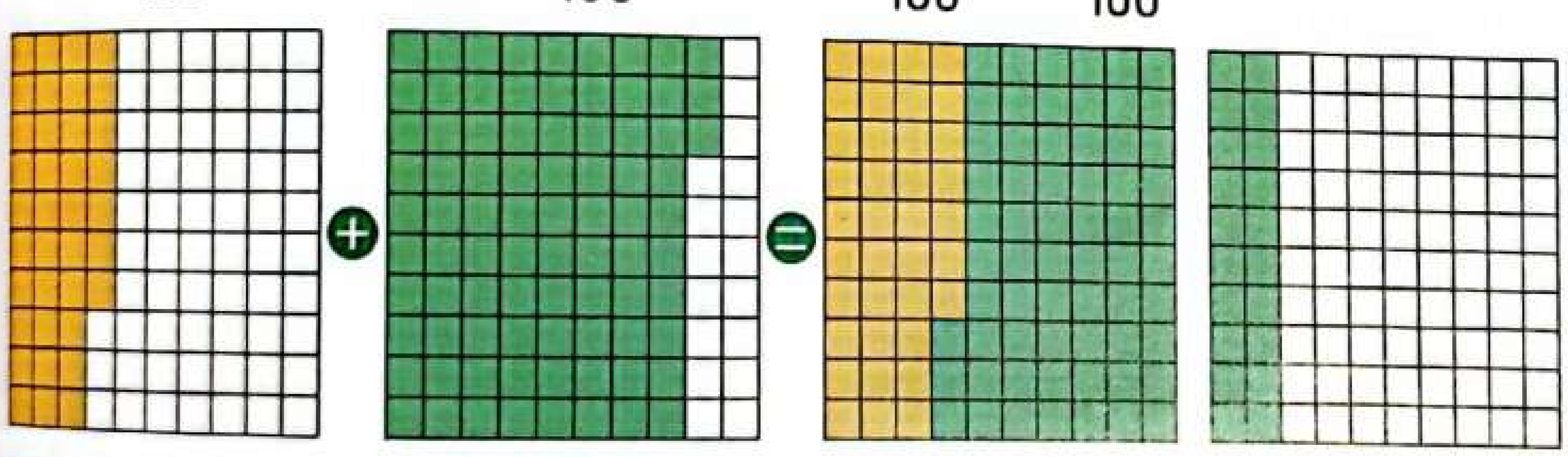
b. $\frac{2}{10} + \frac{38}{100} = \frac{58}{100}$



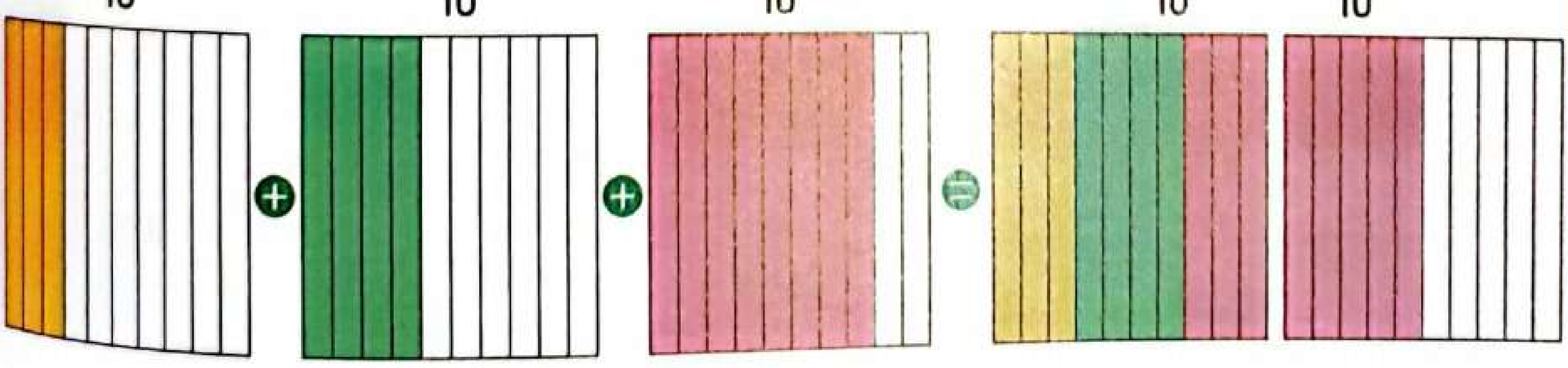
Notice that

$\frac{2}{10} = \frac{20}{100}$

c. $\frac{37}{100} + \frac{83}{100} = \frac{120}{100} = 1\frac{20}{100}$

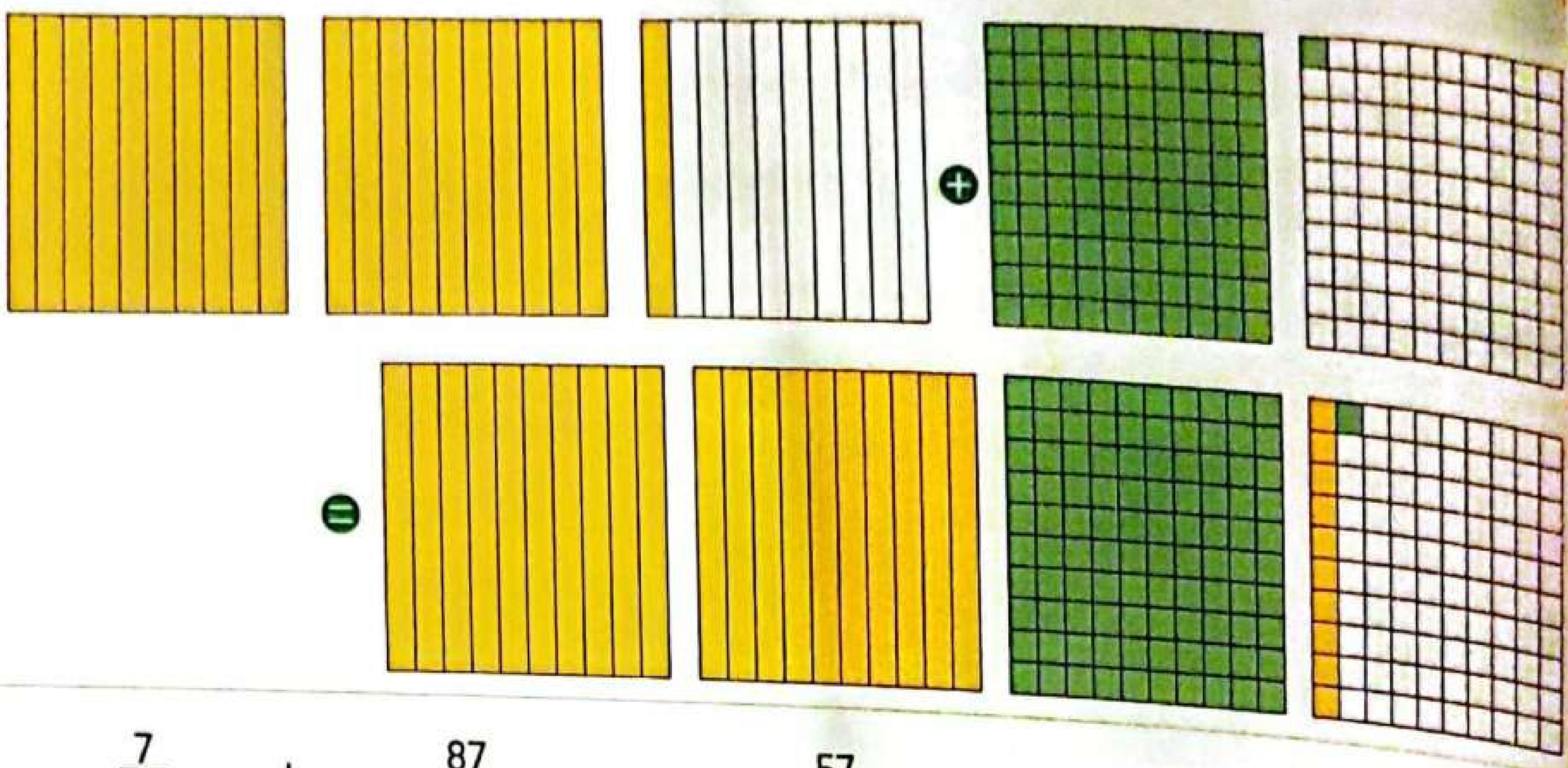


d. $\frac{3}{10} + \frac{4}{10} + \frac{8}{10} = \frac{15}{10} = 1\frac{5}{10}$

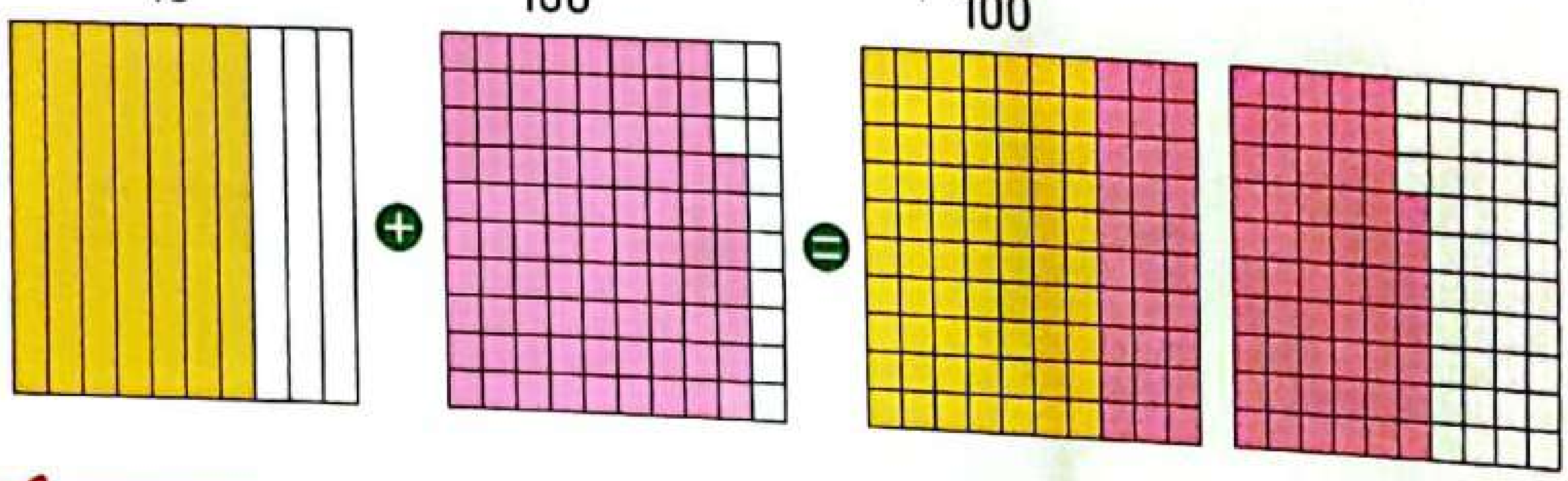


• Remind your child that $\frac{2}{10} = \frac{20}{100}$. (two tenths is equivalent to twenty hundredths)

e. $2\frac{1}{10}$ + $1\frac{1}{100}$ = $3\frac{11}{100}$



f. $\frac{7}{10}$ + $\frac{87}{100}$ = $1\frac{57}{100}$



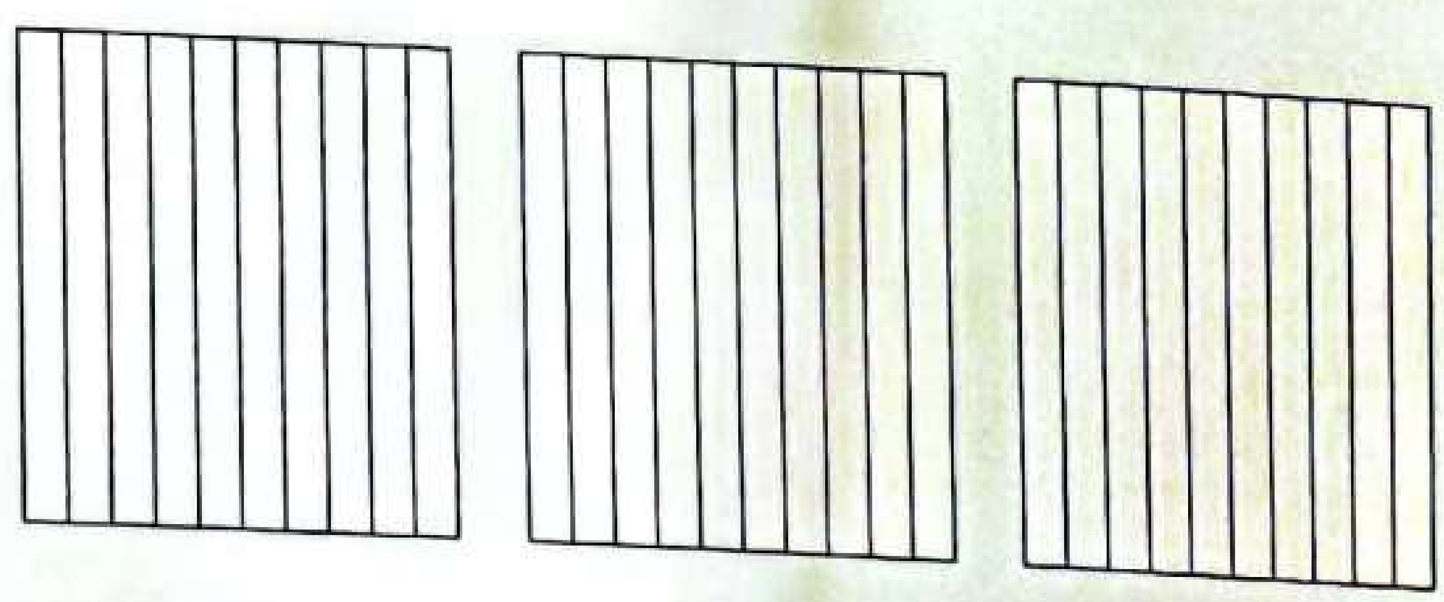
Notice that

$\frac{7}{10} = \frac{70}{100}$

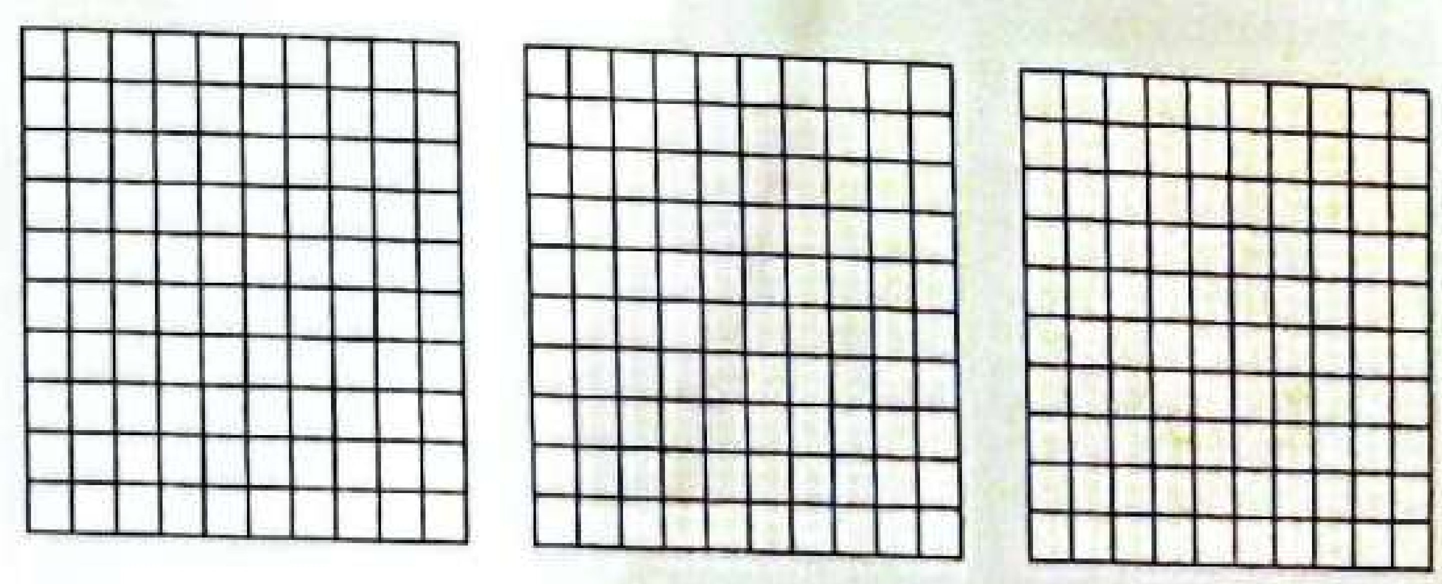
Check your understanding

Find the result using models.

a. $\frac{3}{10} + \frac{6}{10}$



b. $\frac{42}{100} + \frac{7}{100}$



Notes for parents :

- Ask your child how he/she uses models to solve addition problems as $\frac{5}{10} + \frac{30}{100}$

Learn Putting the pieces together

- $\frac{7}{10} + \frac{13}{100} = \frac{70}{100} + \frac{13}{100} = \frac{83}{100}$
- $\frac{5}{10} + \frac{67}{100} = \frac{50}{100} + \frac{67}{100} = \frac{117}{100} = 1\frac{17}{100}$

Remember that

- $\frac{7}{10}$ is equivalent to $\frac{70}{100}$
- $\frac{50}{100}$ is equivalent to $\frac{5}{10}$

Example 2

Record equivalent fractions showing your steps.

a. $\frac{30}{100} = \frac{\quad}{10}$

b. $\frac{7}{10} = \frac{\quad}{100}$

c. $5\frac{40}{100} = 5\frac{4}{\quad}$

d. $\frac{700}{100} = \frac{70}{\quad}$

Solution

a. $\frac{30}{100} = \frac{3}{10}$ (÷ 10 numerator and denominator) "by dividing by 10 the quotient is 3"

b. $\frac{7}{10} = \frac{70}{100}$ (× 10 numerator and denominator) "by multiplying by 10 the result is 70"

c. $5\frac{40}{100} = 5\frac{4}{10}$ (÷ 10 numerator and denominator) "by dividing by 10 the quotient is 10"

d. $\frac{700}{100} = \frac{70}{10}$ (÷ 10 numerator and denominator) "by dividing by 10 the quotient is 10"

• Help your child express a fraction with denominator 10 as an equivalent fraction with denominator 100

Example 3

Complete to find the result.

a. $\frac{34}{100} + \frac{5}{10} = \frac{34}{100} + \frac{\ldots}{100} = \frac{\ldots}{100}$

b. $3\frac{7}{10} + 2\frac{12}{100} = 3\frac{\ldots}{100} + 2\frac{12}{100} = 5\frac{\ldots}{100}$

Solution

a. $\frac{34}{100} + \frac{5}{10} = \frac{34}{100} + \frac{50}{100} = \frac{84}{100}$

b. $3\frac{7}{10} + 2\frac{12}{100} = 3\frac{70}{100} + 2\frac{12}{100} = 5\frac{82}{100}$

Example 4

Find the result.

a. $\frac{3}{10} + \frac{50}{100}$

b. $3\frac{2}{10} + 4\frac{3}{100}$

c. $2\frac{5}{10} + \frac{34}{100} + \frac{61}{100}$

Solution

a. $\frac{3}{10} + \frac{50}{100} = \frac{30}{100} + \frac{50}{100} = \frac{80}{100}$

Another Solution :

$\frac{3}{10} + \frac{50}{100} = \frac{3}{10} + \frac{5}{10} = \frac{8}{10}$

Note that

the two results are equal $\frac{80}{100} = \frac{8}{10}$

b. $3\frac{2}{10} + 4\frac{3}{100} = 3\frac{20}{100} + 4\frac{3}{100} = 7\frac{23}{100}$

c. $2\frac{5}{10} + \frac{34}{100} + \frac{61}{100} = 2\frac{50}{100} + \frac{34}{100} + \frac{61}{100} = 2\frac{145}{100} = 3\frac{45}{100}$

Check your understanding

Find the result.

a. $\frac{1}{10} + \frac{2}{100} =$ ....

b. $3\frac{54}{100} + \frac{6}{10} =$ ....

c. $\frac{7}{10} + \frac{15}{100} + \frac{22}{100} =$ ....

d. $2\frac{2}{10} + 4\frac{71}{100} =$ ....

Notes for parents :

- Help your child write an equivalent fraction of denominator 100 to a fraction of denominator 10 and use this technique to add two fractions.

Exercise 22

10-11 Check the Denominators
10-12 Putting the Pieces Together

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING · From the school book

1. Write the numerator or denominator to form equivalent fraction.

a. $\frac{6}{10} = \frac{__}{100}$

b. $\frac{3}{10} = \frac{__}{100}$

c. $\frac{4}{10} = \frac{40}{__}$

d. $\frac{20}{100} = \frac{2}{__}$

e. $\frac{70}{100} = \frac{7}{__}$

f. $\frac{900}{100} = \frac{90}{__}$

g. $\frac{80}{100} = \frac{8}{__}$

h. $\frac{50}{100} = \frac{__}{10}$

2. Make equivalent fractions and record how you increased or decreased the numerator and the denominator.

a. $\frac{30}{100} = \frac{__}{10}$ ________________

b. $\frac{4}{10} = \frac{40}{__}$ ________________

c. $\frac{2}{10} = \frac{__}{100}$ ________________

d. $\frac{90}{100} = \frac{__}{10}$ ________________

e. $\frac{50}{100} = \frac{__}{10}$ ________________

f. $1\frac{70}{100} = 1\frac{7}{__}$ ________________

g. $\frac{100}{100} = \frac{__}{10}$ ________________

h. $\frac{40}{100} = \frac{__}{100}$ ________________

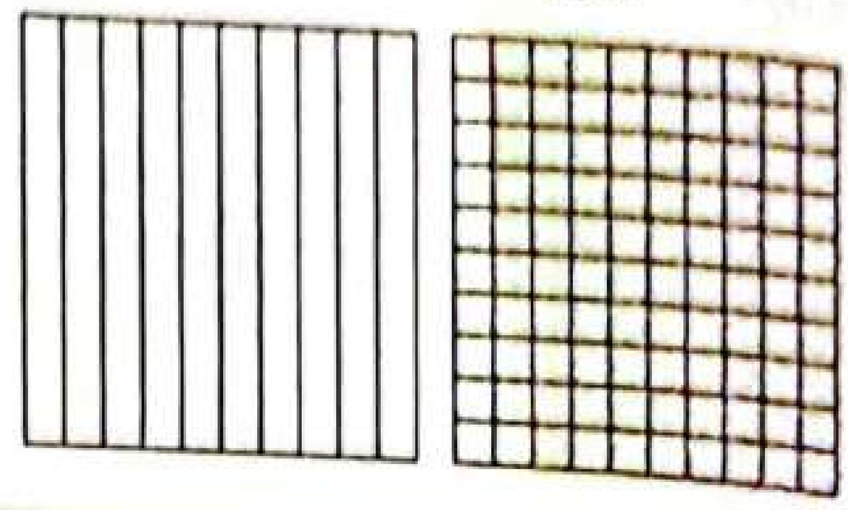
i. $\frac{600}{100} = \frac{60}{__}$ ________________

j. $2\frac{8}{10} = 2\frac{__}{100}$ ________________

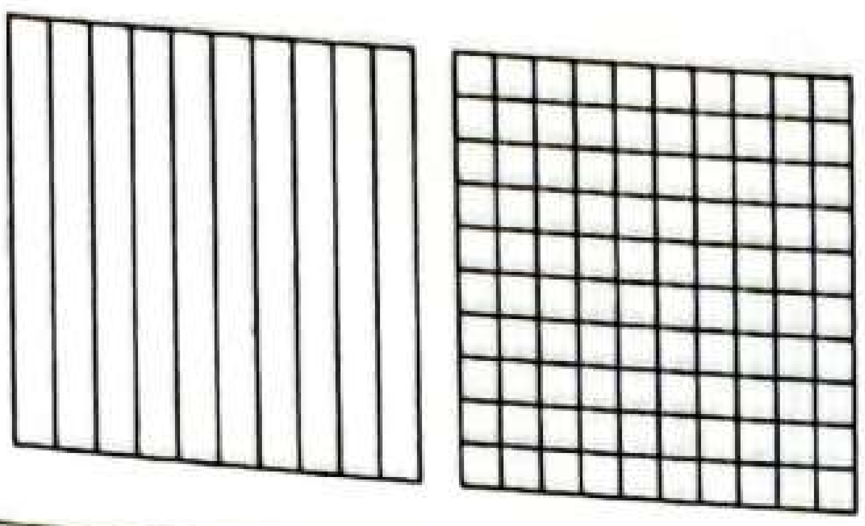
3. Use models to find the result.

a. $\frac{15}{100} + \frac{3}{10} =$ ______

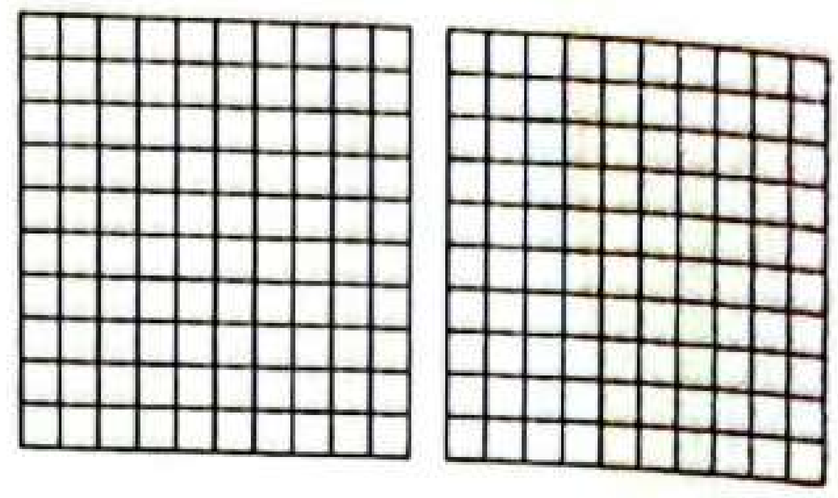
b. $\frac{7}{10} + \frac{25}{100} =$ ______



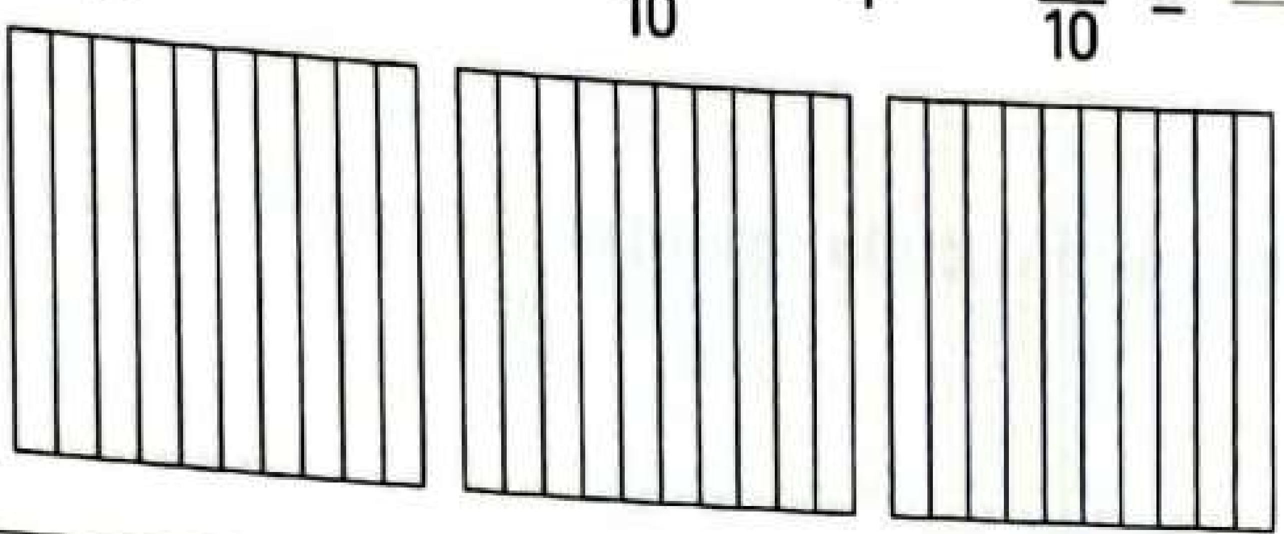
c. $\frac{2}{10} + \frac{30}{100} =$ ______



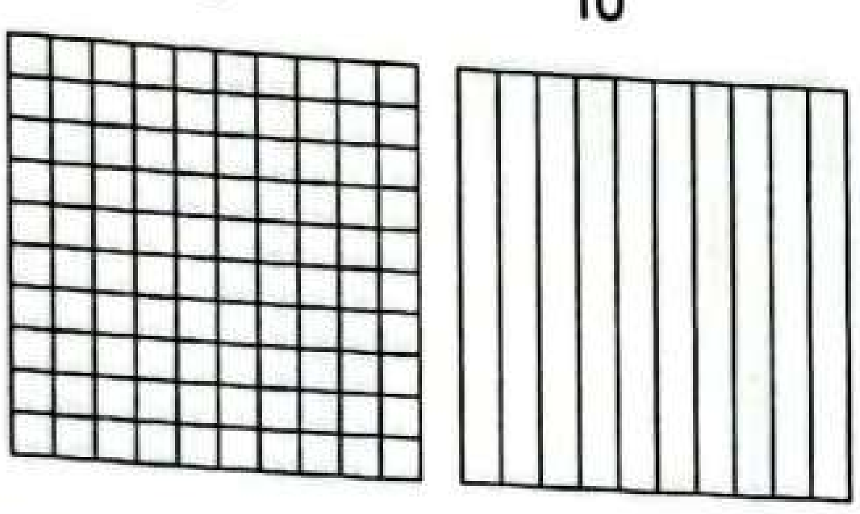
d. $\frac{5}{100} + \frac{7}{10} =$ ______



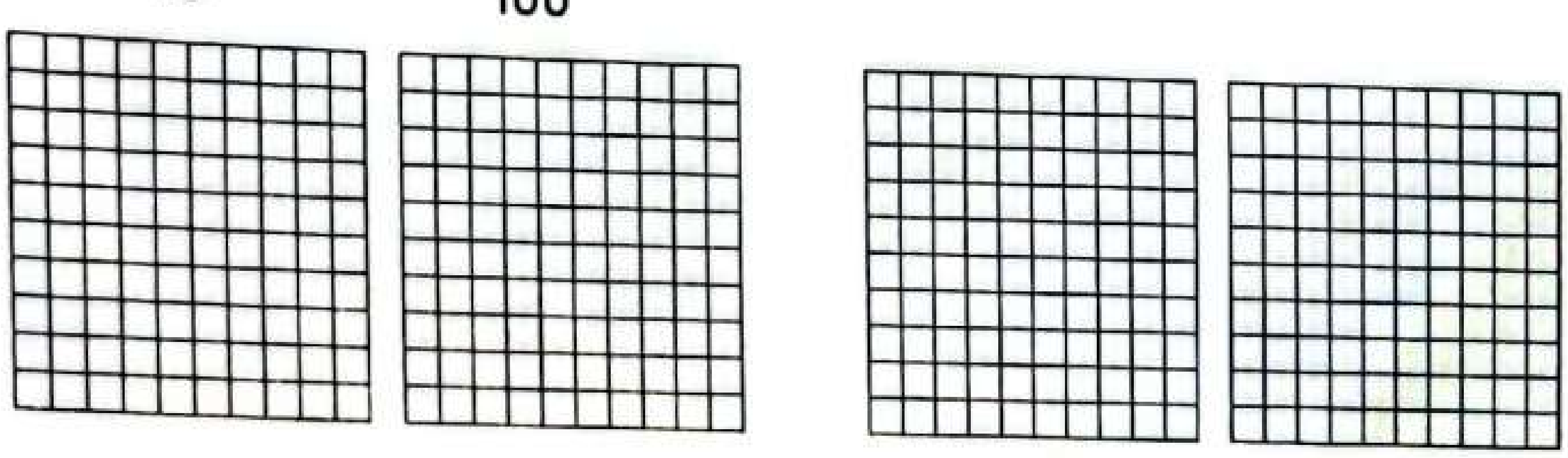
e. $\frac{2}{10} + \frac{6}{10} + \frac{4}{10} =$ ______



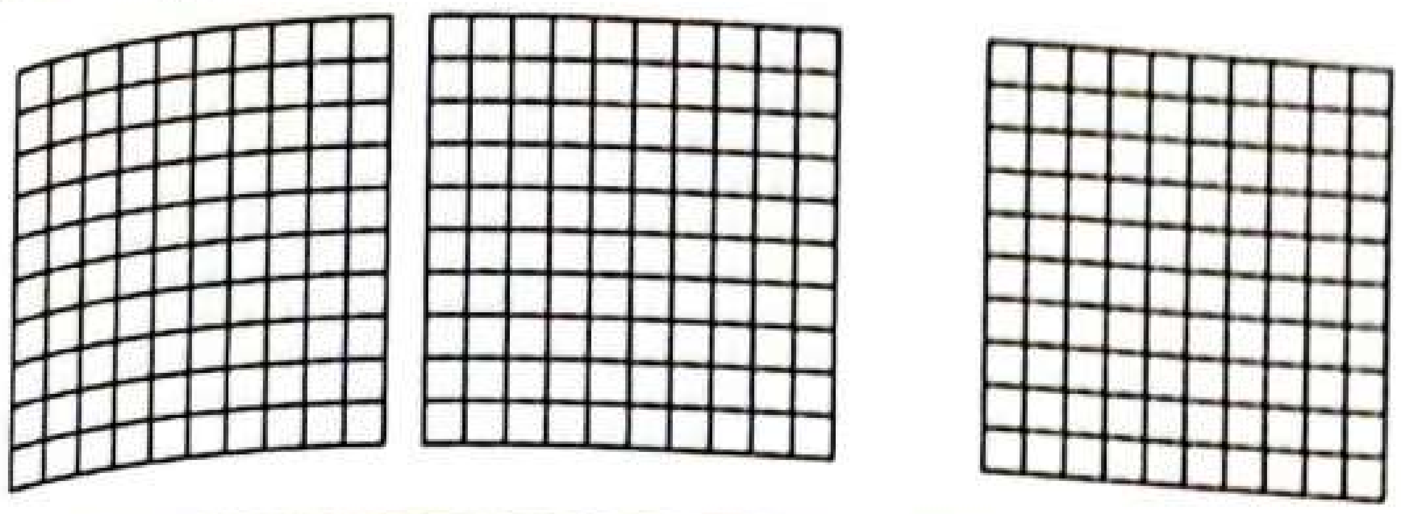
f. $\frac{23}{100} + \frac{7}{10} =$ ______



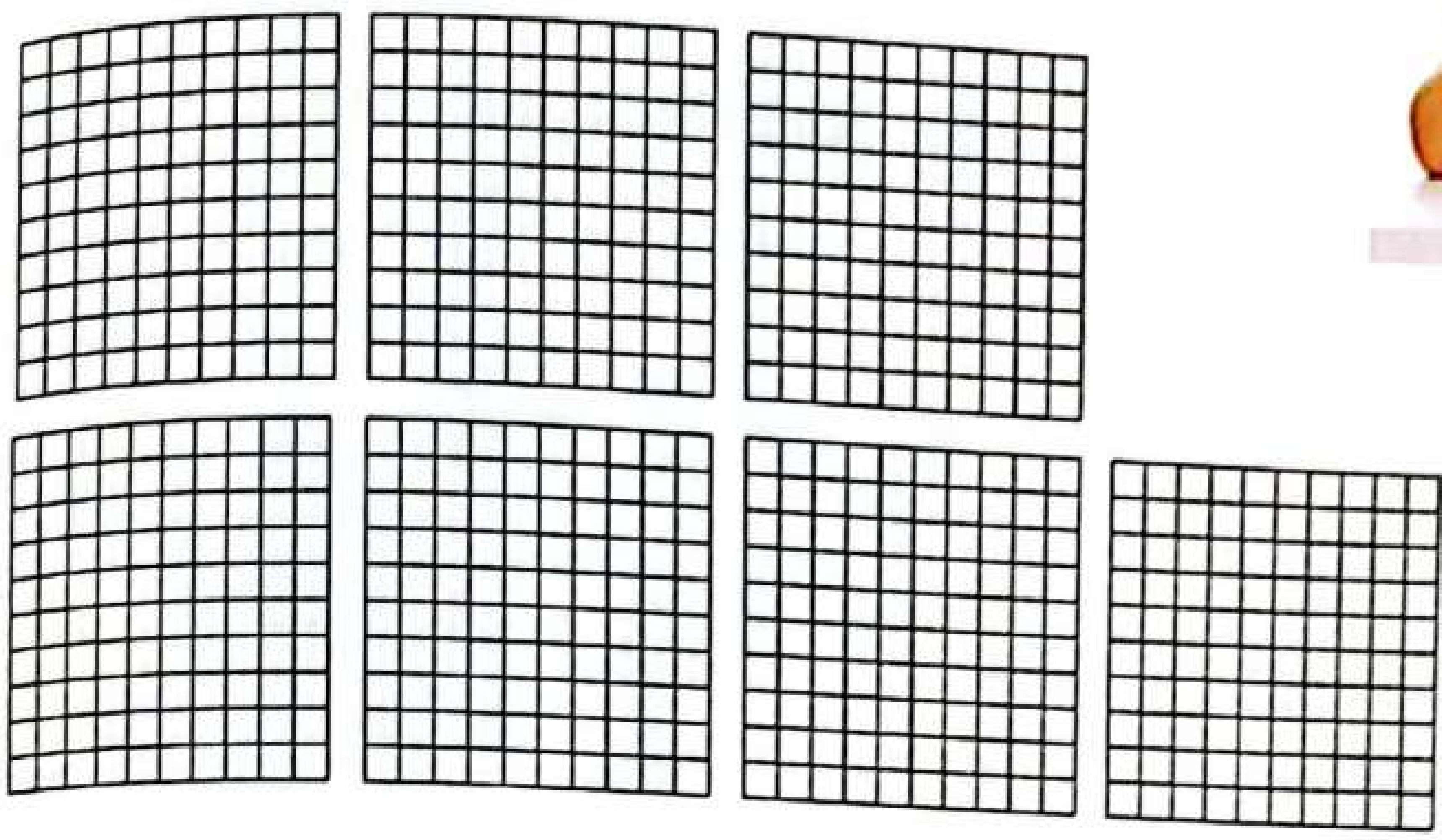
g. $1\frac{4}{10} + 1\frac{32}{100} =$ ______



h. $1\frac{5}{10} + \frac{30}{100} =$ ______



i. $2\frac{75}{100} + 3\frac{32}{100} =$ ______



4. Complete to find the result.

a. $\frac{6}{10} + \frac{23}{100} = \frac{__}{100} + \frac{23}{100} = \frac{__}{100}$

b. $\frac{7}{10} + \frac{60}{100} = \frac{7}{10} + \frac{__}{10} = \frac{__}{10}$

c. $\frac{3}{10} + \frac{8}{100} = \frac{__}{100} + \frac{8}{100} = \frac{__}{__}$

d. $\frac{23}{100} + \frac{9}{10} = \frac{23}{100} + \frac{__}{100} = \frac{__}{__}$

e. $\frac{32}{100} + \frac{5}{10} = \frac{32}{100} + \frac{__}{100} = \frac{__}{__}$

f. $\frac{6}{10} + \frac{82}{100} = \frac{__}{100} + \frac{82}{100} = \frac{__}{__}$

5. Find the result of each of the following.

a. $\frac{7}{10} + \frac{25}{100} =$ ______

b. $\frac{41}{100} + \frac{5}{10} =$ ______

c. $\frac{32}{100} + \frac{31}{100} =$ ______

d. $\frac{72}{100} + \frac{54}{100} =$ ______

e. $\frac{3}{10} + \frac{70}{100} =$ ______

f. $\frac{40}{100} + \frac{5}{10} =$ ______

g. $\frac{6}{10} + \frac{40}{100} =$ ______

h. $\frac{20}{100} + \frac{8}{10} =$ ______

i. $\frac{7}{10} + \frac{3}{10} + \frac{1}{100} =$ ______

j. $\frac{2}{10} + \frac{24}{100} + \frac{6}{10} =$ ______

k. $2\frac{32}{100} + 5\frac{6}{10} =$ ______

l. $\frac{73}{100} + 2\frac{2}{10} =$ ______

m. $\frac{3}{10} + \frac{3}{100} =$ ______

n. $2\frac{3}{10} + 4\frac{5}{100} =$ ______

o. $12\frac{1}{10} + 4\frac{37}{100} =$ ______

p. $4\frac{2}{10} + 5\frac{2}{100} + 2\frac{2}{10} =$ ______

6. Put (✓) to the correct statement and (X) to the incorrect statement.

a. $\frac{3}{10} + \frac{7}{10} = \frac{10}{20}$ [ ]

b. $\frac{2}{10} + \frac{5}{100} = \frac{7}{100}$ [ ]

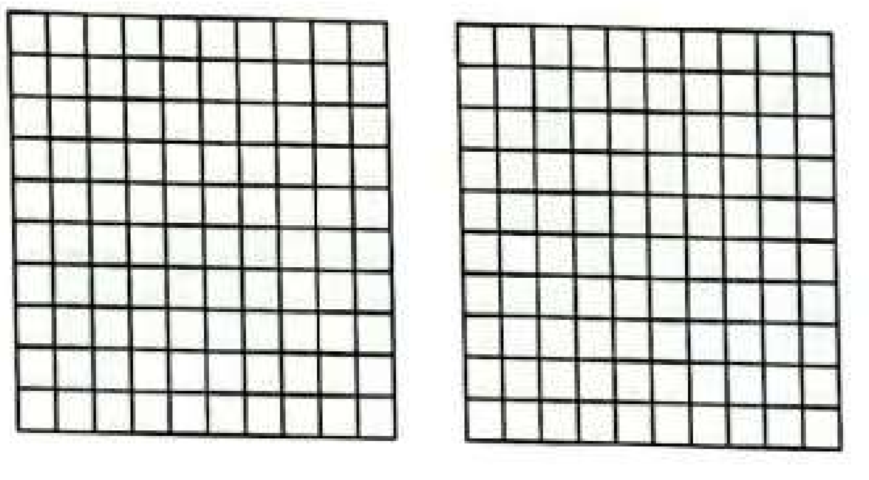
c. $\frac{3}{100} + \frac{2}{10} = \frac{32}{100}$ [ ]

d. $\frac{35}{100} + \frac{4}{10} = \frac{75}{100}$ [ ]

e. $2\frac{2}{10} + 3\frac{14}{100} = 5\frac{34}{100}$ [ ]

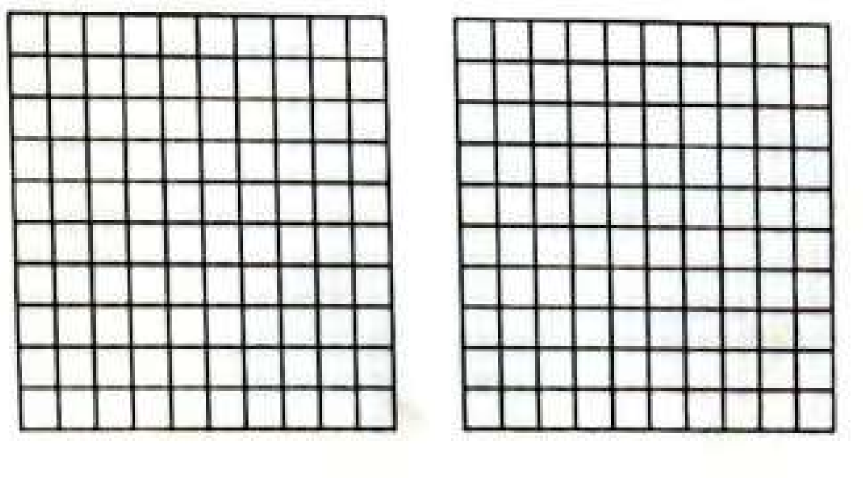
f. $\frac{17}{100} + 0.5 = \frac{22}{100}$ [ ]

7. Abeer had $\frac{8}{10}$ of a meter of fabric. She went to the store and bought another $\frac{25}{100}$ of a meter. How much fabric did she have in all? Fill in the models to show each fraction and then solve.



______

8. Diaa had a water bottle with $\frac{5}{10}$ liter in it. He added it to another bottle that had $\frac{65}{100}$ of a liter. Does he have more than 1 liter? How do you know? Use the models to explain.



______

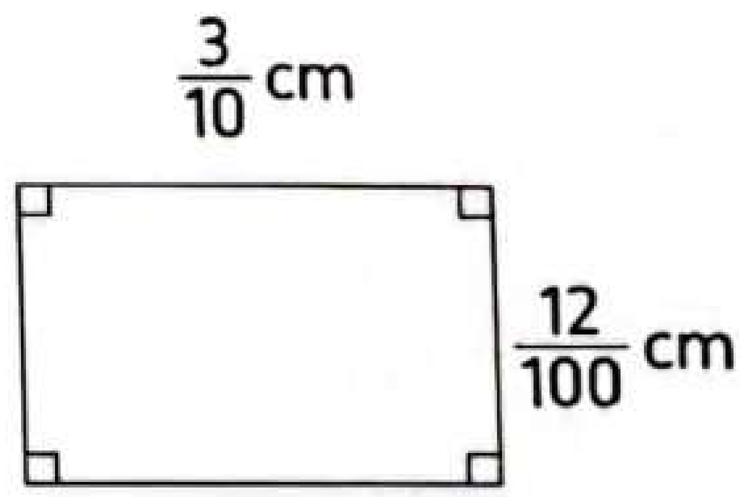
9. Basma made a necklace and a bracelet. She used $\frac{6}{10}$ of a meter of string for the necklace and $\frac{25}{100}$ of a meter of string for the bracelet. How much string did she use in all? Write the fraction in simplest form.

10. Ali has a vessel of capacity one liter filled by $\frac{2}{10}$, he adds $\frac{60}{100}$ liter to the vessel. What is the fraction that represents the empty part of the vessel by tenths and hundredths?

11. Laila read $\frac{3}{10}$ of her book on Saturday and read $\frac{65}{100}$ of it on Sunday. What is the fraction that represents all of Laila read?

Challenge

12. Find the perimeter of the opposite rectangle.



Multiple Choice Questions

Choose the correct answer.

1. $\frac{3}{10} + \frac{17}{100} =$ ______

A. $\frac{20}{10}$ B. $\frac{20}{100}$

C. $\frac{47}{100}$ D. $\frac{75}{100}$

2. $\frac{21}{100} + \frac{7}{10}$ ☐ $\frac{71}{100} + \frac{2}{10}$

A. $>$ B. $<$ C. $=$

3. $\frac{39}{100} + \frac{41}{100} =$ ______

A. 0.8 B. $\frac{70}{100}$ C. $\frac{7}{10}$ D. $\frac{80}{10}$

4. Which of the following is true ?

A. $\frac{2}{10} + \frac{6}{10} = \frac{8}{20}$

B. $2\frac{3}{10} + 3\frac{22}{100} = 5\frac{52}{100}$

C. $4\frac{2}{100} + 7\frac{3}{10} = 11\frac{5}{100}$

D. $9\frac{18}{100} + 9\frac{1}{10} = 18\frac{19}{100}$

5. $\frac{7}{10} + \frac{8}{10} + \frac{9}{10} =$ ______

A. $2\frac{4}{100}$ B. $\frac{24}{100}$

C. $\frac{23}{10}$ D. $2\frac{4}{10}$

6. $\frac{2}{10} + \frac{3}{10} = \frac{\quad}{100}$

A. 5 B. 50

C. 60 D. 500

7. $3\frac{17}{100} + 2\frac{5}{10} =$ ______

A. $5\frac{67}{100}$ B. $5\frac{22}{10}$

C. $5\frac{22}{100}$ D. $6\frac{22}{100}$

8. $\frac{75}{100} + \frac{1}{10} <$ ______

A. $\frac{85}{100}$ B. $\frac{9}{10}$

C. $\frac{83}{100}$ D. $\frac{79}{100}$

9. $\frac{3}{10} >$ ______

A. $\frac{15}{100} + \frac{1}{10}$ B. $\frac{2}{10} + \frac{1}{10}$

C. $\frac{18}{100} + \frac{12}{100}$ D. $\frac{5}{10} + \frac{71}{100}$

Unit Ten Assessments

Model 1

1. Choose the correct answer.

a. The value of the digit 3 in the number 15.23 is ______

A. 0.03 B. 0.30 C. 3 D. 30

b. 0.07 = ______ as a fraction.

A. $\frac{7}{10}$ B. $\frac{7}{100}$ C. $\frac{70}{10}$ D. $\frac{70}{100}$

c. 1.52 ◯ 1.6

A. > B. < C. =

2. Complete.

a. $\frac{5}{10} + \frac{25}{100} =$ ______

b. 3.16 in word form is ______

c. 5.7 = ______ tenths.

3. Match.

a.	5.2	1.	$5\frac{11}{100}$
b.	5 + 0.1 + 0.02	2.	$5\frac{2}{10}$
c.	$2\frac{1}{10} + 3\frac{1}{100}$	3.	81 tenths
d.	8.1	4.	5.12
e.	$8\frac{3}{10}$	5.	$3\frac{12}{100} + 5\frac{18}{100}$

4. Put (✓) to the correct statement and (✗) to the incorrect one.

a. 5 ones and 3 hundredths = 5.3 ( )

b. 1.05 > 89 hundredths ( )

c. $4\frac{1}{10} + 3\frac{87}{100} = 7\frac{88}{100}$ ( )

5. Mohamed was training for the race. On Sunday, he ran for $\frac{7}{10}$ km. On Monday, he ran for $\frac{36}{100}$ km. What distance did he run in all?

______

Model 2

1. Choose the correct answer.

a. $7 + 0.1 + 0.05 =$ ______

A. 71.5 B. 7.15 C. 7.51 D. 1.75

b. Which fraction is equivalent to 0.7 ?

A. $\frac{70}{10}$ B. $\frac{7}{100}$ C. $\frac{7}{10}$ D. 70

c. $\frac{35}{100} + \frac{2}{10} <$ ______

A. $\frac{7}{10}$ B. $\frac{55}{100}$ C. $\frac{3}{10}$ D. $\frac{49}{100}$

2. Complete.

a. The place value of the digit 3 in the number 54.32 is ______

b. Six and eight hundredths = ______ in standard form.

c. 21.7 = ______ hundredths.

3. Match.

a.	$5\frac{70}{100} = 5\frac{\quad}{10}$	1.	$\frac{2}{10} + \frac{14}{100}$
b.	5 Ones , 2 Tenths , 3 Hundredths	2.	5.2
c.	$52\frac{3}{10}$	3.	7
d.	52 tenths	4.	5.23
e.	$\frac{3}{10} + \frac{4}{100}$	5.	52.3

4. Put (✓) to the correct statement and (✗) to the incorrect one.

a. $0.08 = 0.8$ [ ]

b. $7.2 > 7.16$ [ ]

c. $2\frac{1}{10} + 5\frac{1}{100} = 7\frac{2}{100}$ [ ]

5. Mostafa ate 0.7 of his food. His brother ate $\frac{25}{100}$ of his food. Who ate more ?

______

Theme 3 | Fractions, Decimals, and Proportional Relationships

UNIT 11 Data with Fractions

» **Concept 1 :** Creating and Analyzing Graphs

Concept 1 Creating and Analyzing Graphs

Fast Fact

Egypt have won the African cup of Nations (footba… petition) most times with the total 7 times.

The table provides a list of most winners :

African cup of Nations winners					
Winner	Egypt	Cameroon	Ghana	Nigeria	[illegible]
Number of times	7	5	4	3	

How can you graph these data ?!

Concept Overview

In concept 1:

Creating and Analyzing Graphs, students organize, create, and analyze bar graphs, double bar graphs, and line plots. Bar graphs and line plots are reviewed from previous grades. Students explore double bar graphs and line plots with fractional values. They create graphs from tables and charts, generate and answer questions about various graphs, and determine which graph is appropriate for different data sets. The concept wraps up with students collecting data from their peers and determining how to represent the data in a graph. They write questions about their own graphs and answer questions posed by partners about their graphs.

Lesson No.	Lesson Name	Vocabulary Terms	Learning Objectives
Lesson 1	11-1 Show Me the Data	Axis Bar graph Categories Data Double bar graph Horizontal Intervals Key Scale Vertical	• Students will distinguish between different types of graphs. • Students will explain the difference between bar graphs and double bar graphs. • Students will explain when it is appropriate to use double bar graphs.
Lesson 2	11-2 Plotting Along	Frequency Horizontal	• Students will explain why data might include fractions. • Students will construct a line plot using data with fractions. • Students will analyze a line plot using data with fractions.
	11-3 Breaking the Bar	Axis Increments Scale	• Students will construct a bar graph using data with fractions. • Students will analyze a bar graph containing data with fractions. • Students will construct a double bar graph using data with fractions. • Students will analyze a bar graph containing data with fractions.
Lesson 3	11-4 Data About Us	Review vocabulary as needed.	• Students will select the most appropriate graph to display a set of data. • Students will construct an appropriate graph to display a set of data. • Students will analyze data in graphs.
	11-5 Graphing the Class	Review [illegible]	• Students will ask and answer questions about fractional data in a graph.

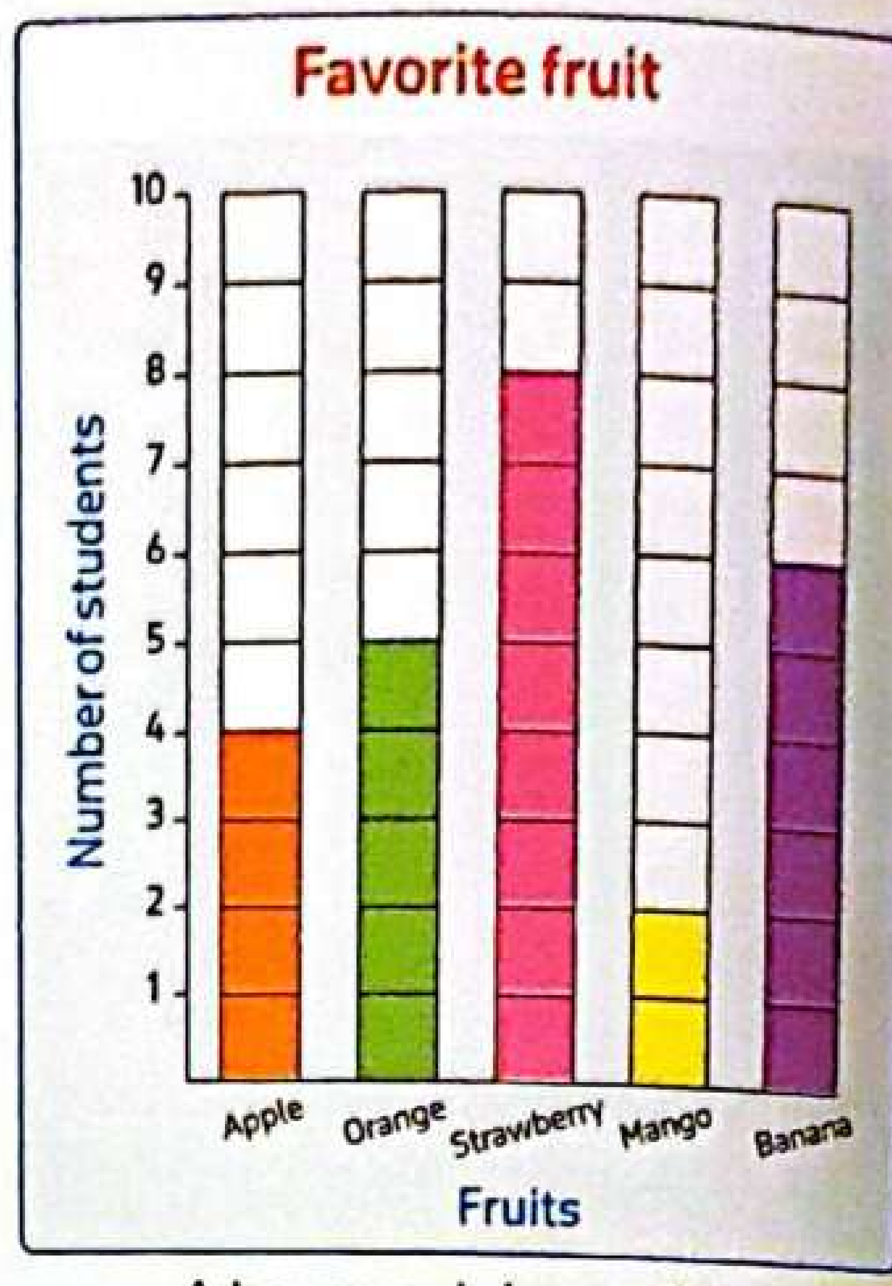
Lesson
1

11-1 Show Me the Data

Remember

- You have learned before that data can be represented by more than one way.
- These data about student's favorite fruit.
Sandra represented these data by a bar graph.

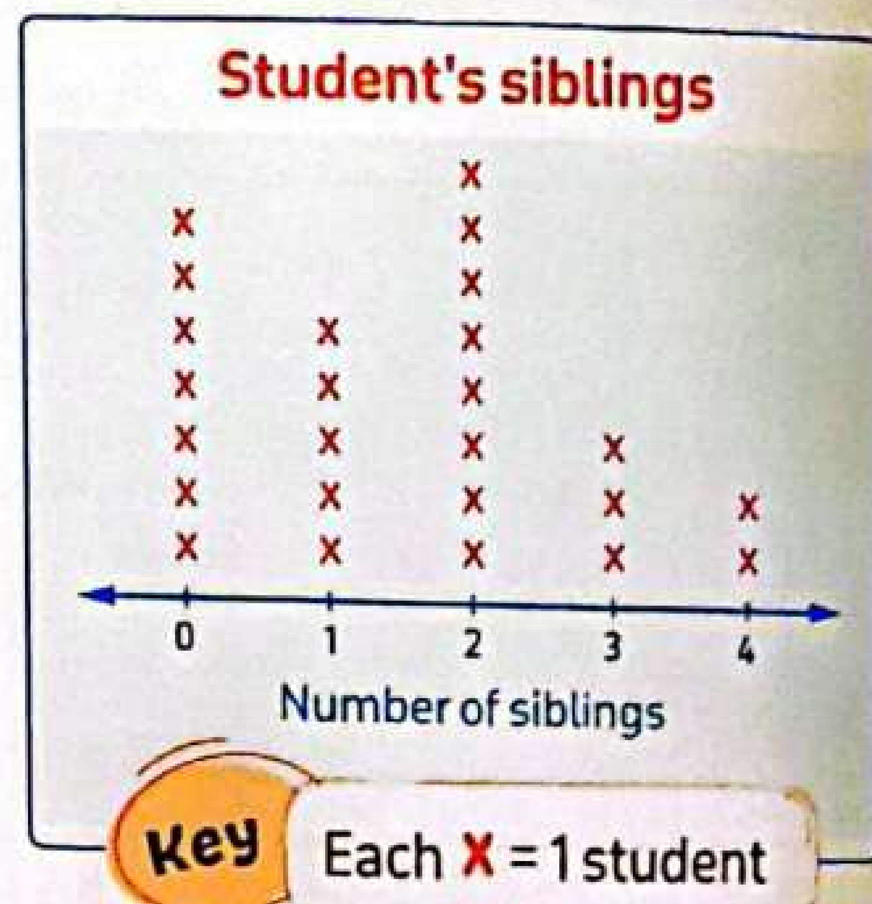
Favorite fruit	
Fruit	Number
Apple	4
Orange	5
Strawberry	8
Mango	2
Banana	6



A bar graph is used to compare data.

- These data about siblings (brothers and sisters)
- Amgad represented these data by a line plot.

Student's siblings	
Siblings	Number
0	7
1	5
2	8
3	3
4	2



A line plot compares data by showing clusters of information.

Notes for parents :

- Remind your child how he/she can represent data by a bar graph and a line plot.

Example 1

Observe the graph and answer the questions given below.

a. Which camp do most students prefer?

b. Which camp was chosen by the fewest students?

c. How many students chose space camp?

d. How many more students chose space camp than sports camp?

e. Which two camps were chosen by the same number of students?

Solution

a. Space.

b. Drama.

c. 20

d. $20 - 15 = 5$

e. Outdoor adventure and sports.

Example 2

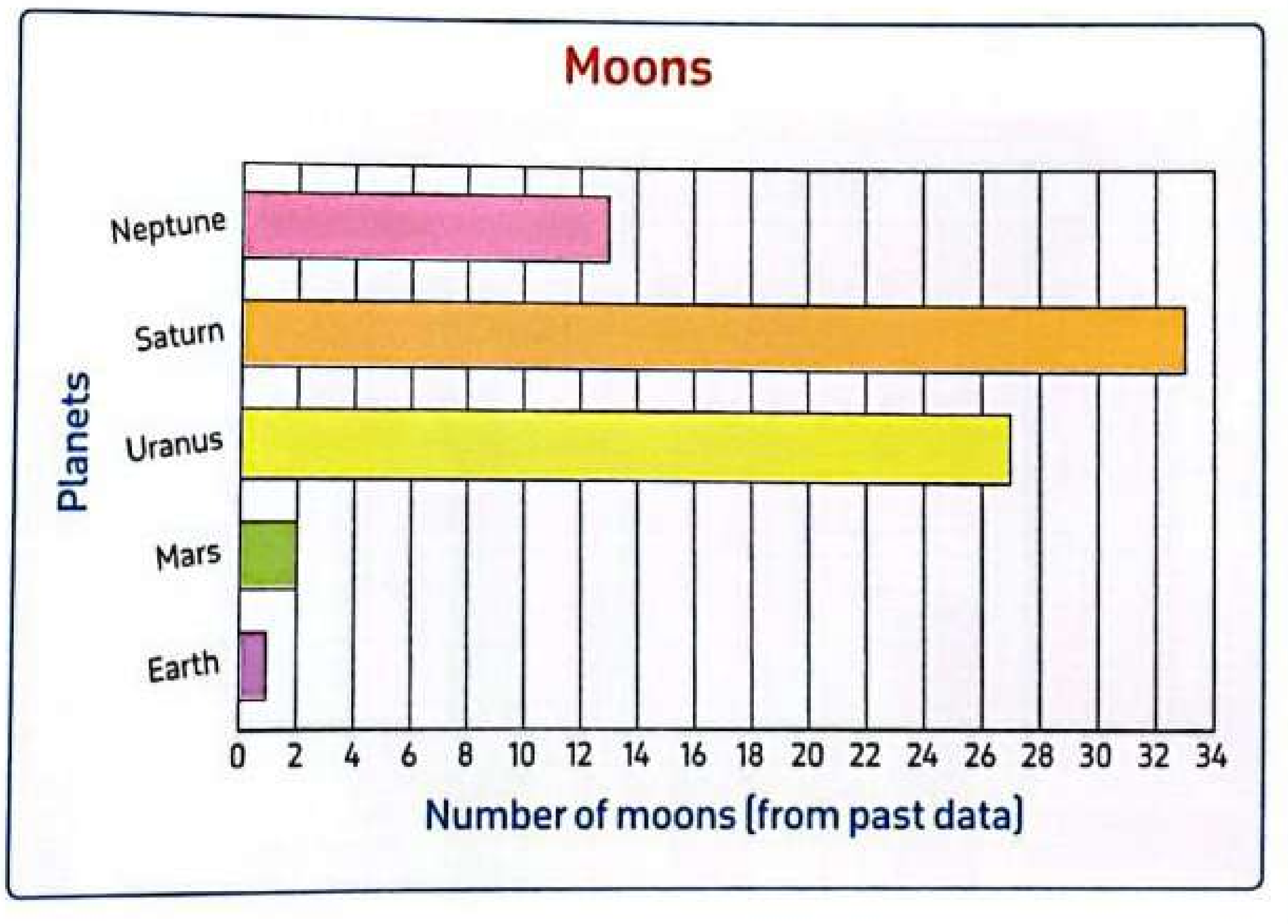
Observe the graph and answer the questions given below.

a. Which plant has the lowest number of moons?

b. What is the number of moons around the Mars planet?

c. Which planet has less moons than Neptune but more than Earth?

d. Which planet has more moons than Mars but fewer than Uranus?



Solution

a. Earth.

b. 2

c. Mars

d. Neptune.

*Ask your child to review the elements of the bar graph and to point to each part.

Learn Double bar graph

How do you read a bar graph ?

A bar graph uses bars to show data that can be counted.

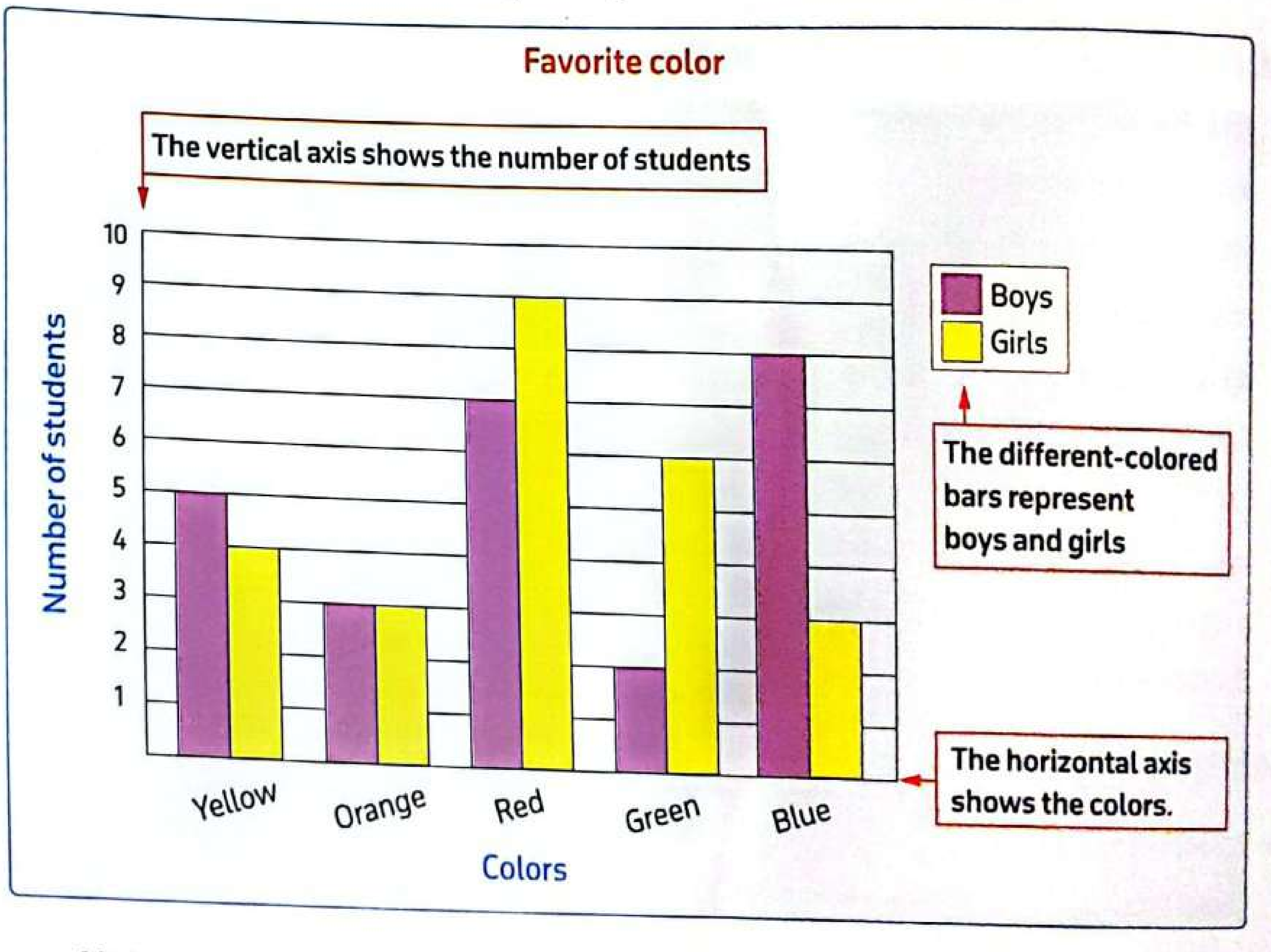
A double bar graph uses two different-colored or shaded bars to compare two similar sets of data that can be counted.

The following survey shows student's favorite color for 25 boys and 25 girls.

The data is organized in a table.

Favorite color		
Colors	Boys	Girls
Yellow	5	4
Orange	3	3
Red	7	9
Green	2	6
Blue	8	3

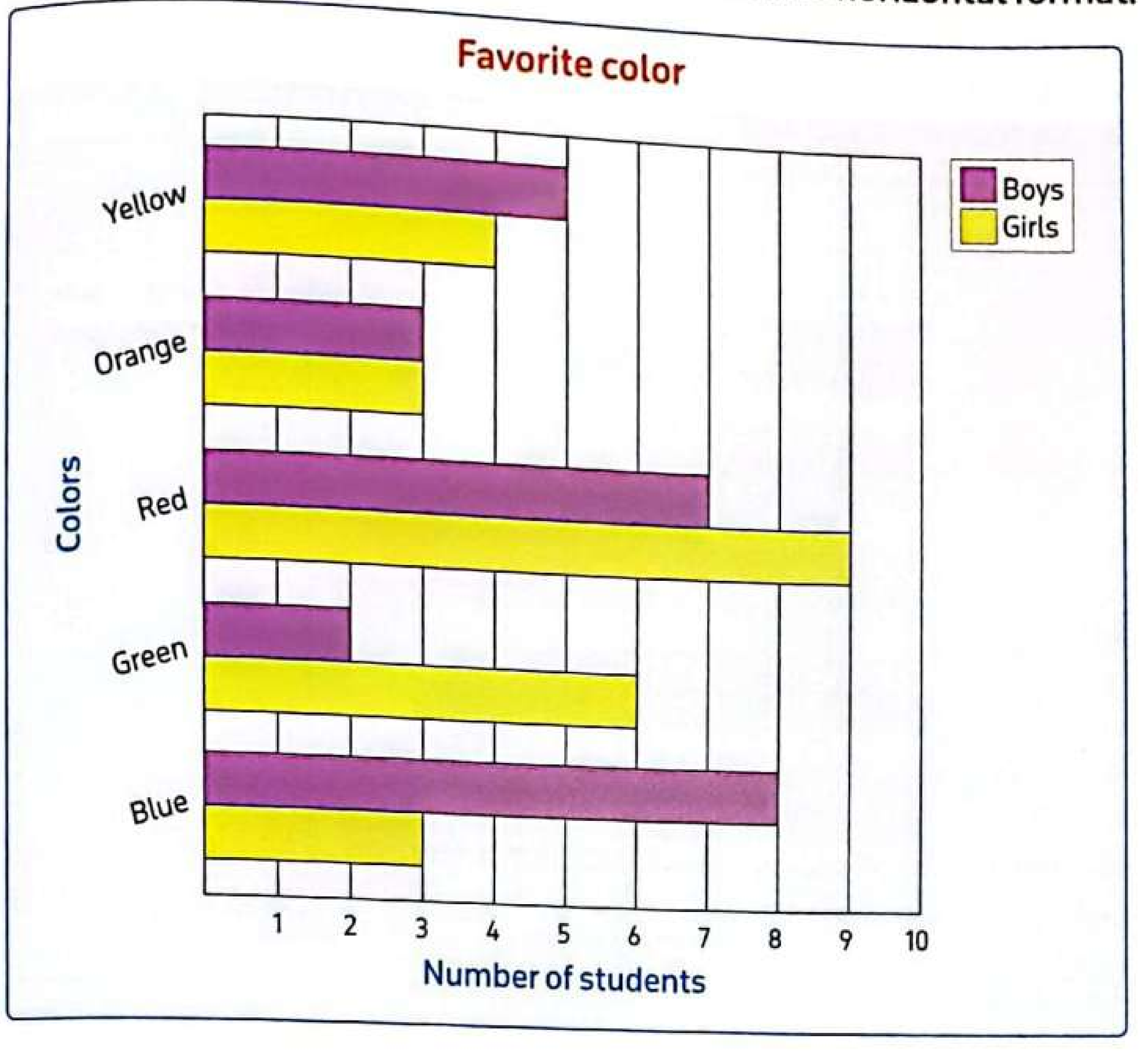
The graph below shows number of boys and girls voted for favorite color.



Notes for parents :

- Let your child explain the difference between bar graphs and double bar graphs.

The same data can be converted from the vertical format into horizontal format.



Example 3

Observe the given graph and answer the questions below.

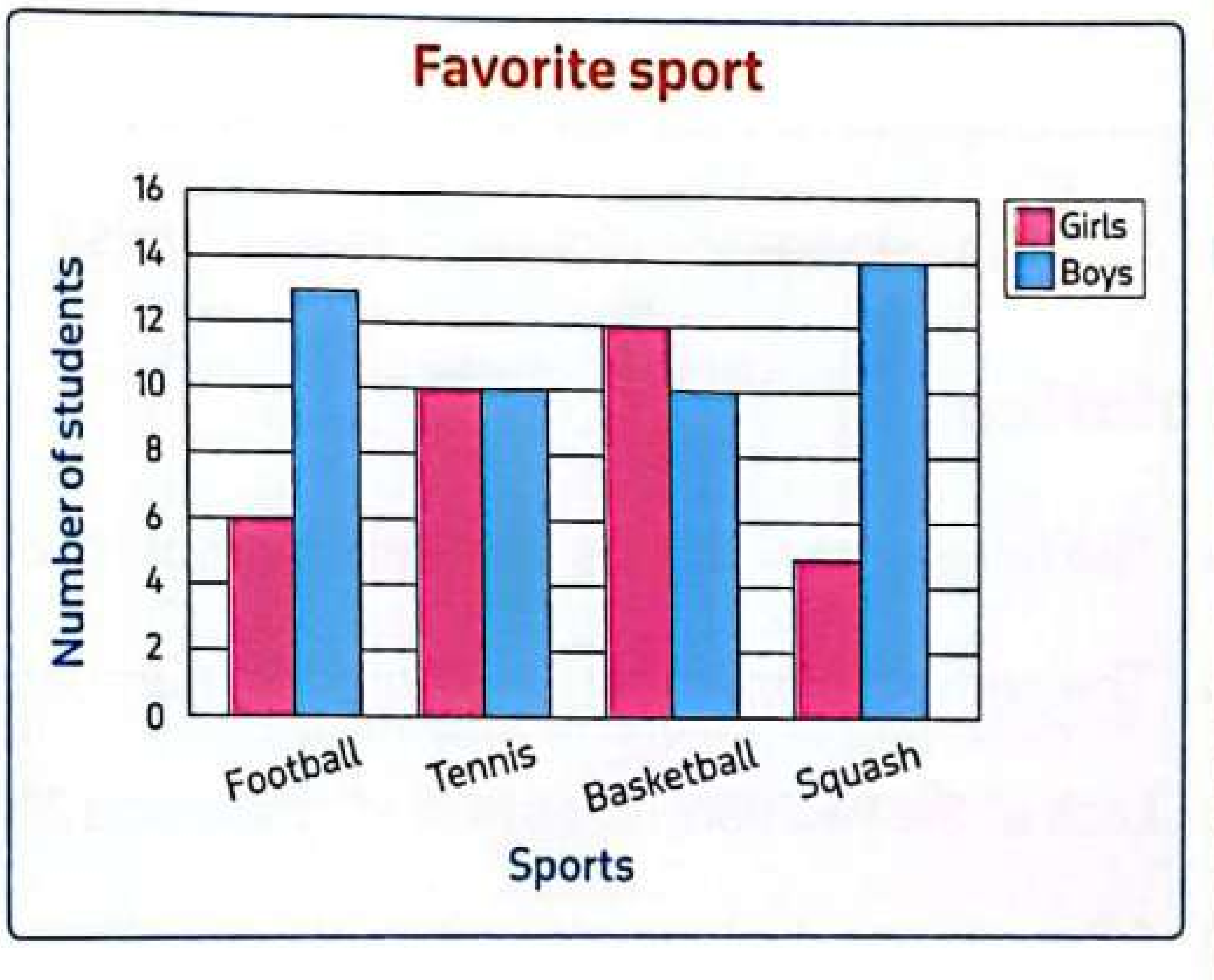
a. Which is the most preferred sport of the girls ?

b. Which is the most preferred sport of the boys ?

c. How many girls like squash ?

d. Which sport is liked by 10 girls ?

e. How many students like basketball ?



Solution

a. Basketball.

b. Squash.

c. 5

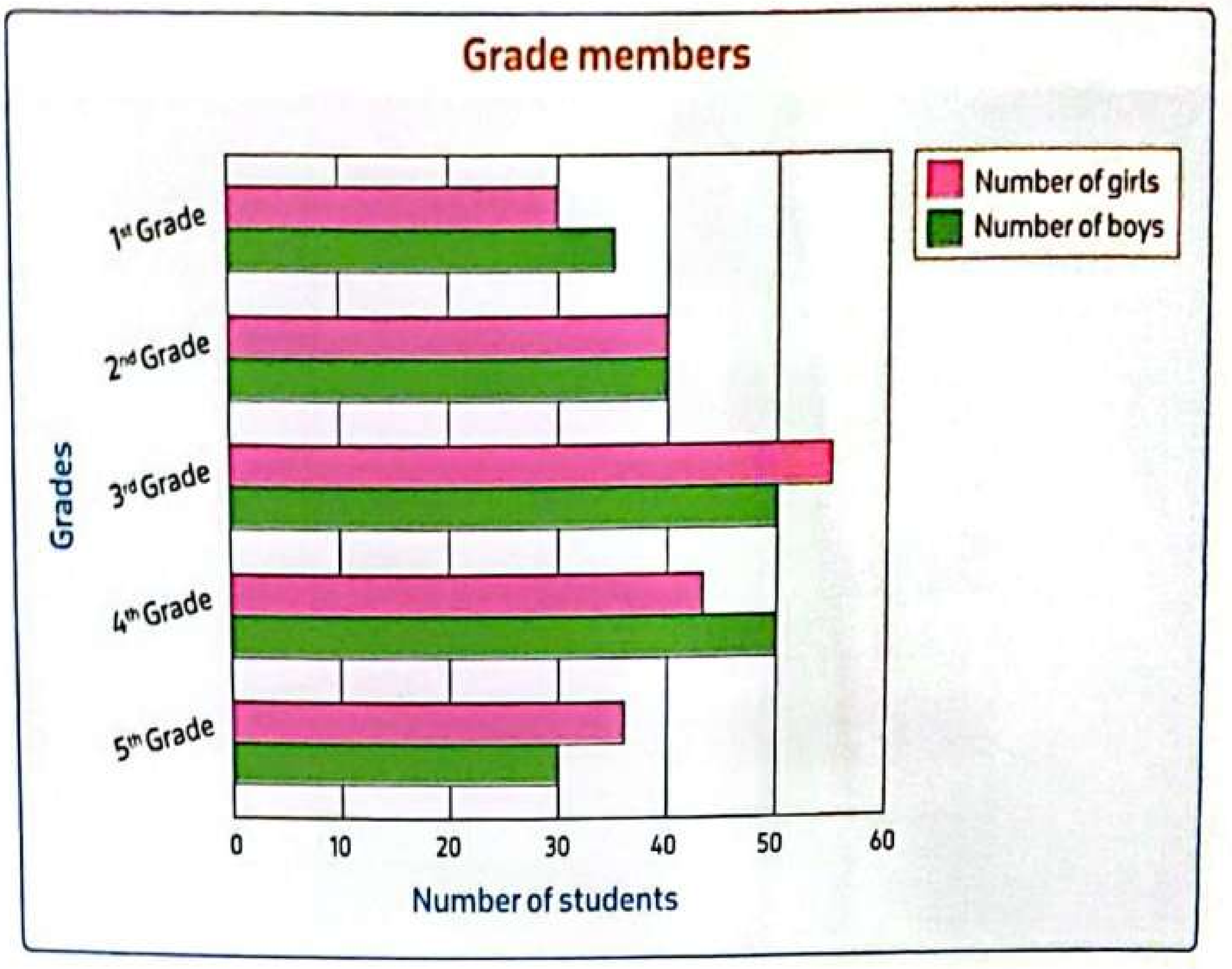
d. Tennis

e. 22

• Let your child explain when it is appropriate to use double bar graphs.

Example 4

Observe the graph and answer the questions given below.



a. What is the number of boys in 4th grade ?

b. What is the number of members in 3rd grade ?

c. What is the difference in the number of boys in 4th grade and 2nd grade ?

d. Which grade has the lowest number of boys ?

e. Which grade has the highest number of girls ?

Solution

a. The bar for the 4th grade shows the number of boys 50

b. The number of members in 3rd grade = number of boys + number of girls = 50 + 55 = 105

c. Look at the two bars for boys in 4th grade and 2nd grade. Difference = 50 – 40 = 10

d. 5th grade has the lowest number of boys.

e. 3rd grade has the highest number of girls.

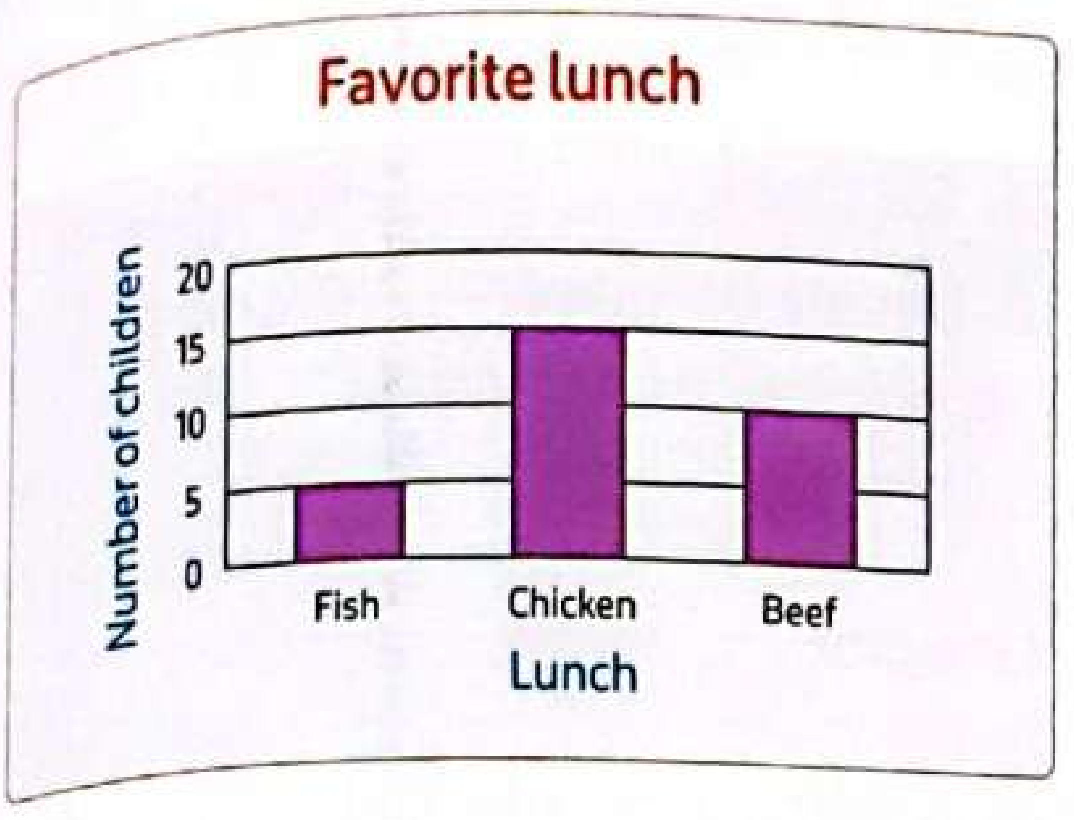
Notes for parents :

• Help your child answer the questions about data.

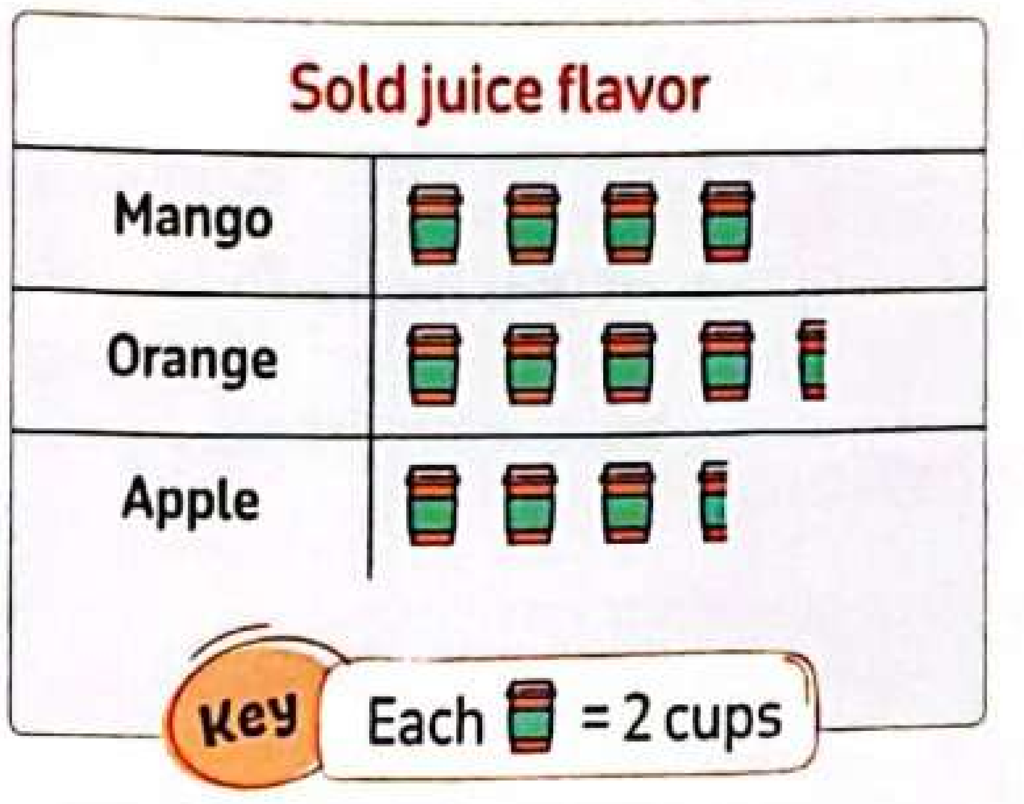
Learn Choose an appropriate graph

• The type of graph used to display data depends upon the type of information you want to show.

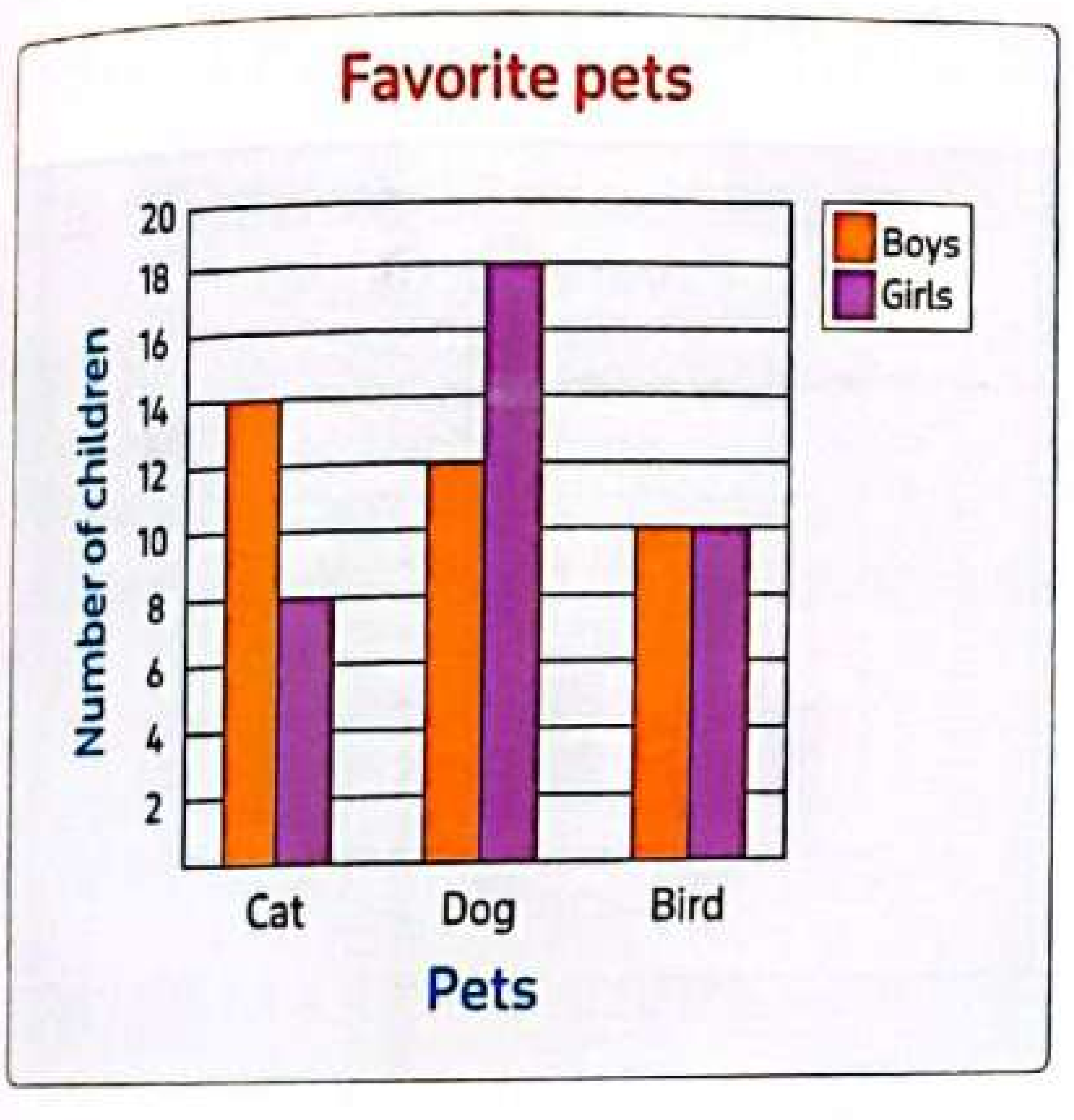
Examples



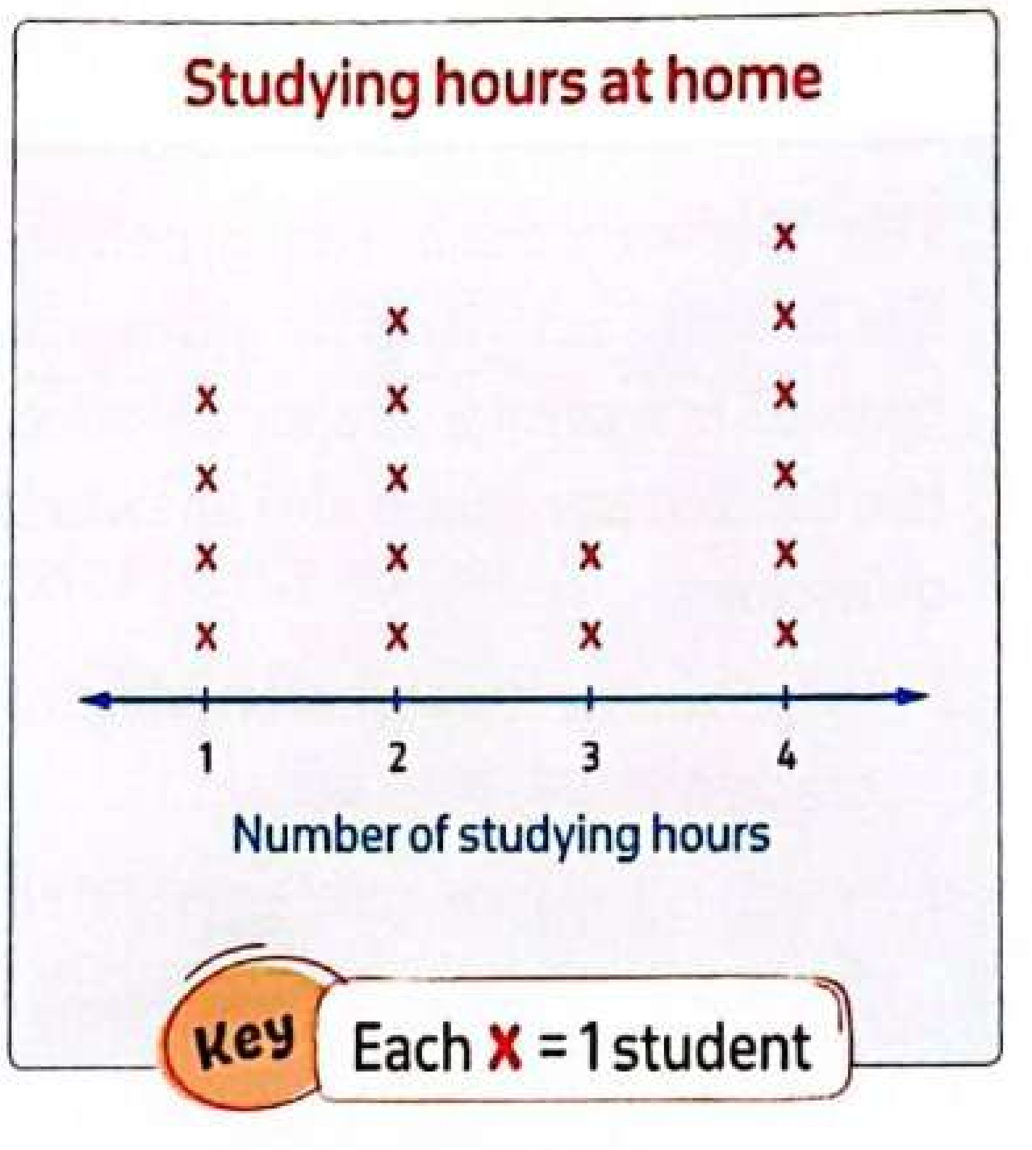
Use a bar graph to show and compare data about different categories, or groups.



Use a pictograph to show and compare data about different categories, or groups.



Use a double bar graph to show and compare two similar sets of data using two-different colored bars.



Use a line plot to show the frequency of the data along a number line.

• Help your child distinguish between different types of graphs.

Example 5

Choose the best answer.

a. Sara collected a data about the number of read books each child read between two months May and June.

Which type of graph would best to display these data ?

A. Bar graph B. Pictograph

C. Double bar graph D. Line plot

b. Amir collected data about the number of family member for each child at his class.

Which type of graph would best to display these data ?

A. Bar graph B. Pictograph

C. Double bar graph D. Line plot

Solution

a. Double bar graph

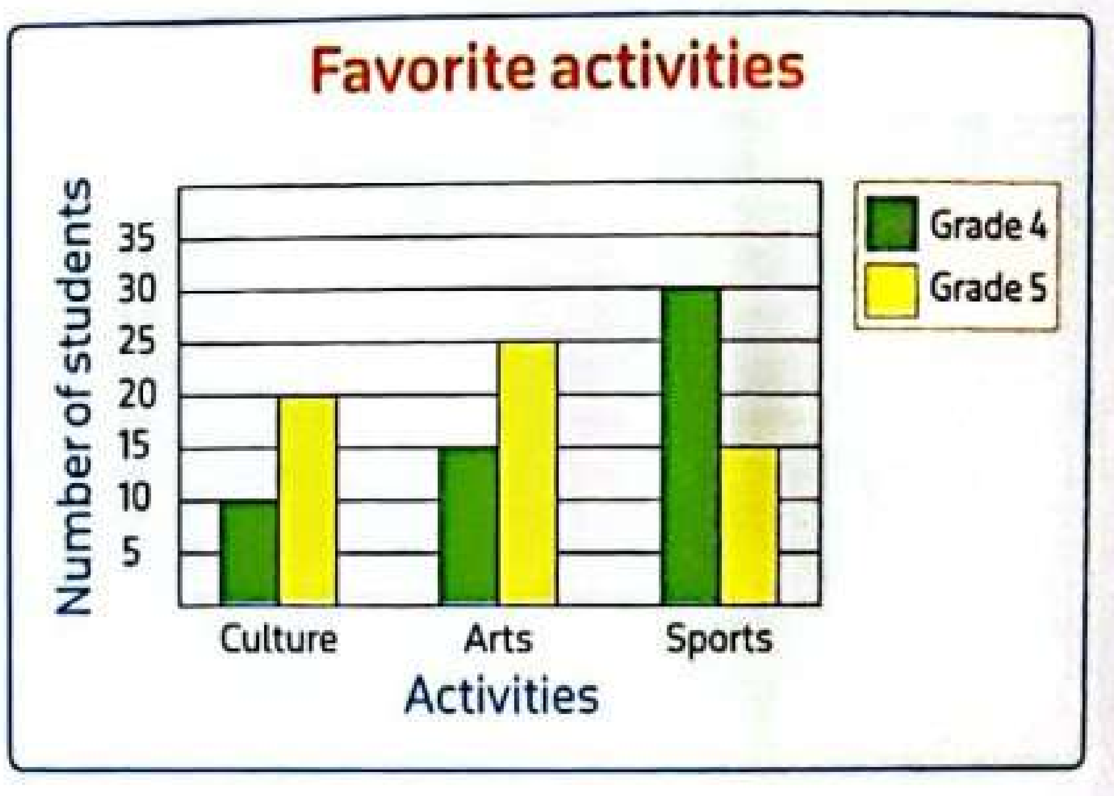
b. Line plot

Check your understanding

1. **Which type of graph would best to represent the highest and the lowest temperatures in Cairo for 5 days ?**

A. Bar graph B. Pictograph C. Double bar graph D. Line plot

2. **The following double bar graph shows the favorite activities for grade 4 and grade 5 in a primary school. Notice the double bar graph and answer the questions.**



a. Which is the most preferred activity of grade 4 ? ______

b. Which is the most preferred activity of grade 5 ? ______

c. How many students chose arts in grade 5 ? ______

d. Which activity is chosen by 40 students ? ______

e. Calculate the difference between the number of students between grade 4 and grade 5.

______

______

______

Notes for parents :

• Make sure that your child understand that double bar graphs are used to make comparisons between and among sets of data.

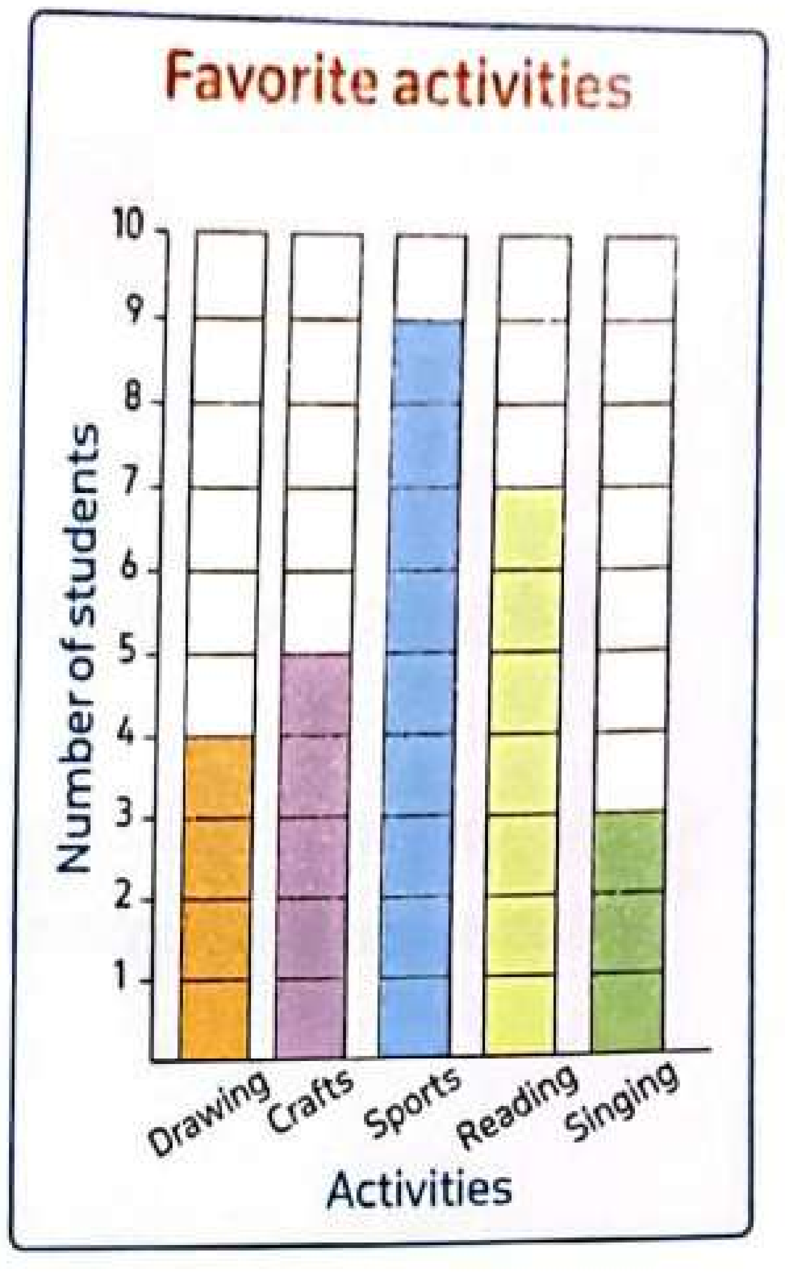
Exercise 23

11-1 Show Me the Data

REMEMBER · UNDERSTAND · APPLY · PROBLEM SOLVING   From the school book

1. The following graph shows student's votes for their favorite activities. Complete the following table. Then answer the questions.

	Favorite activities				
Activity	Drawing	Crafts	Sports	Reading	Singing
Number					



a. Which activity do most students prefer?

b. Which activity was chosen by the fewest students?

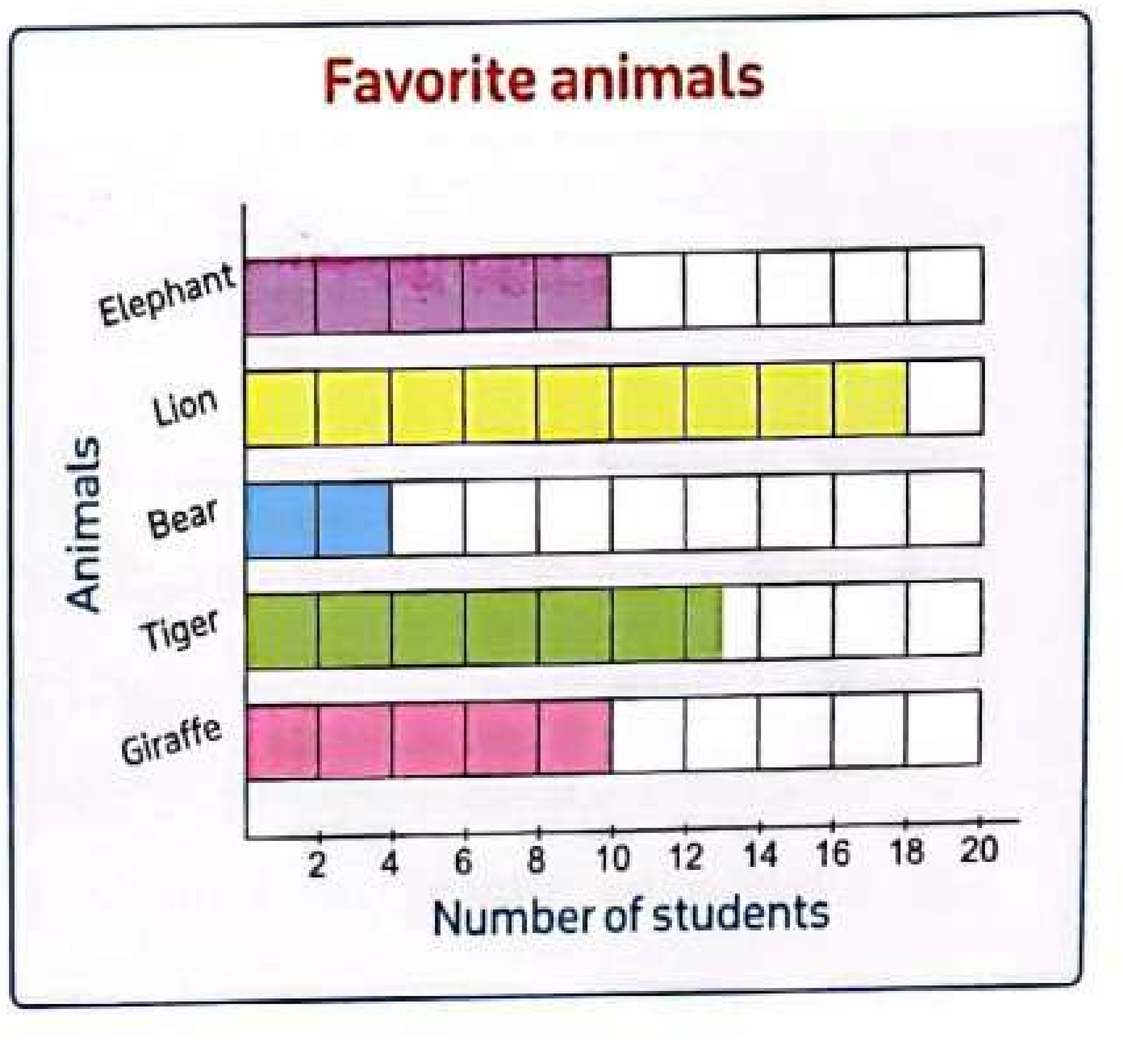
c. How many students chose reading?

d. How many more students chose sports than crafts?

e. Which two activities their sum equals the number of students chose sports?

---

2. The following graph shows student's votes for their favorite animal. Answer the following questions.



a. Which animal is liked the most?

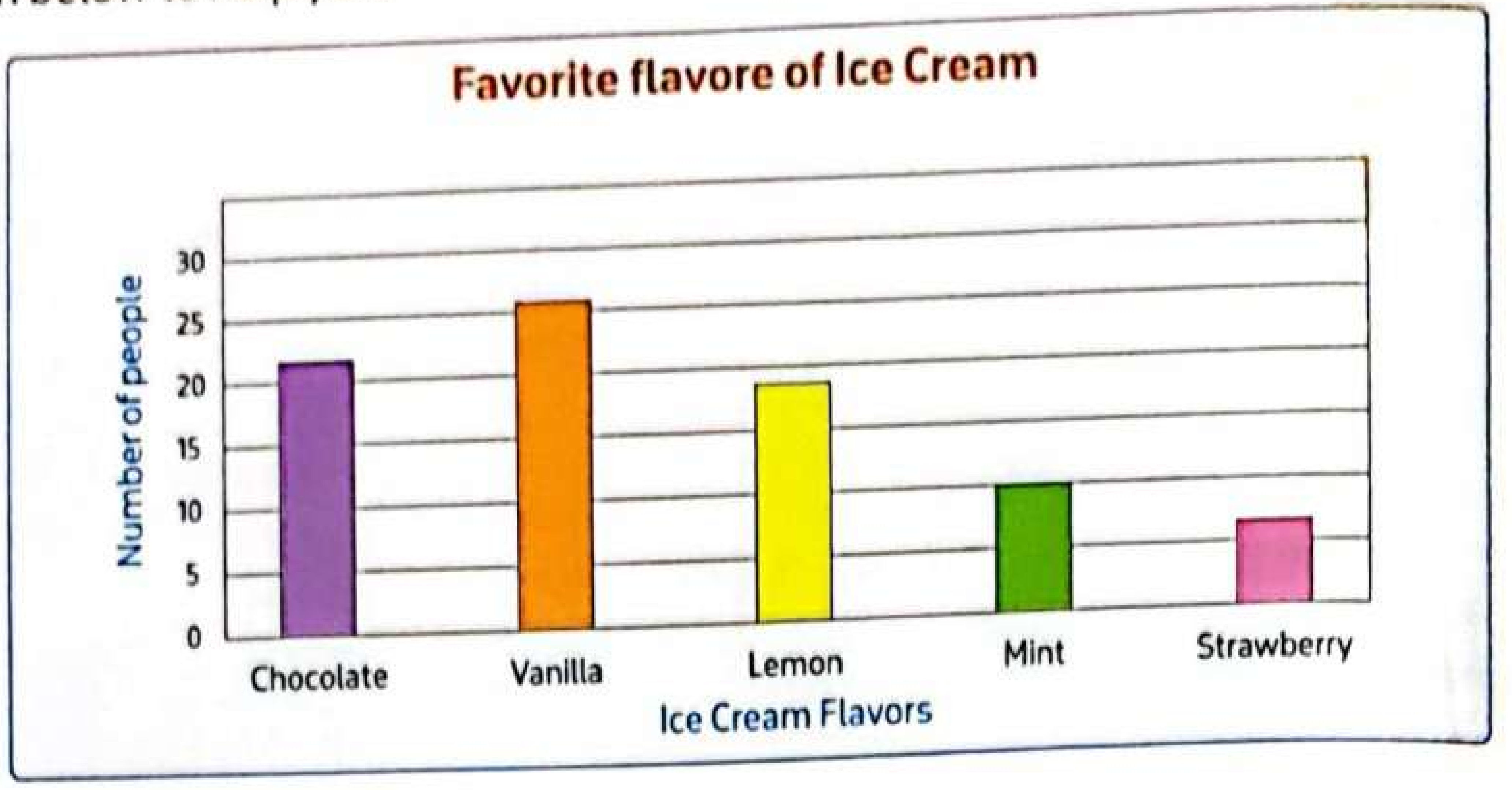
b. Which animal is liked the least?

c. How many students liked tiger?

d. Which two animals were liked by the same number of students?

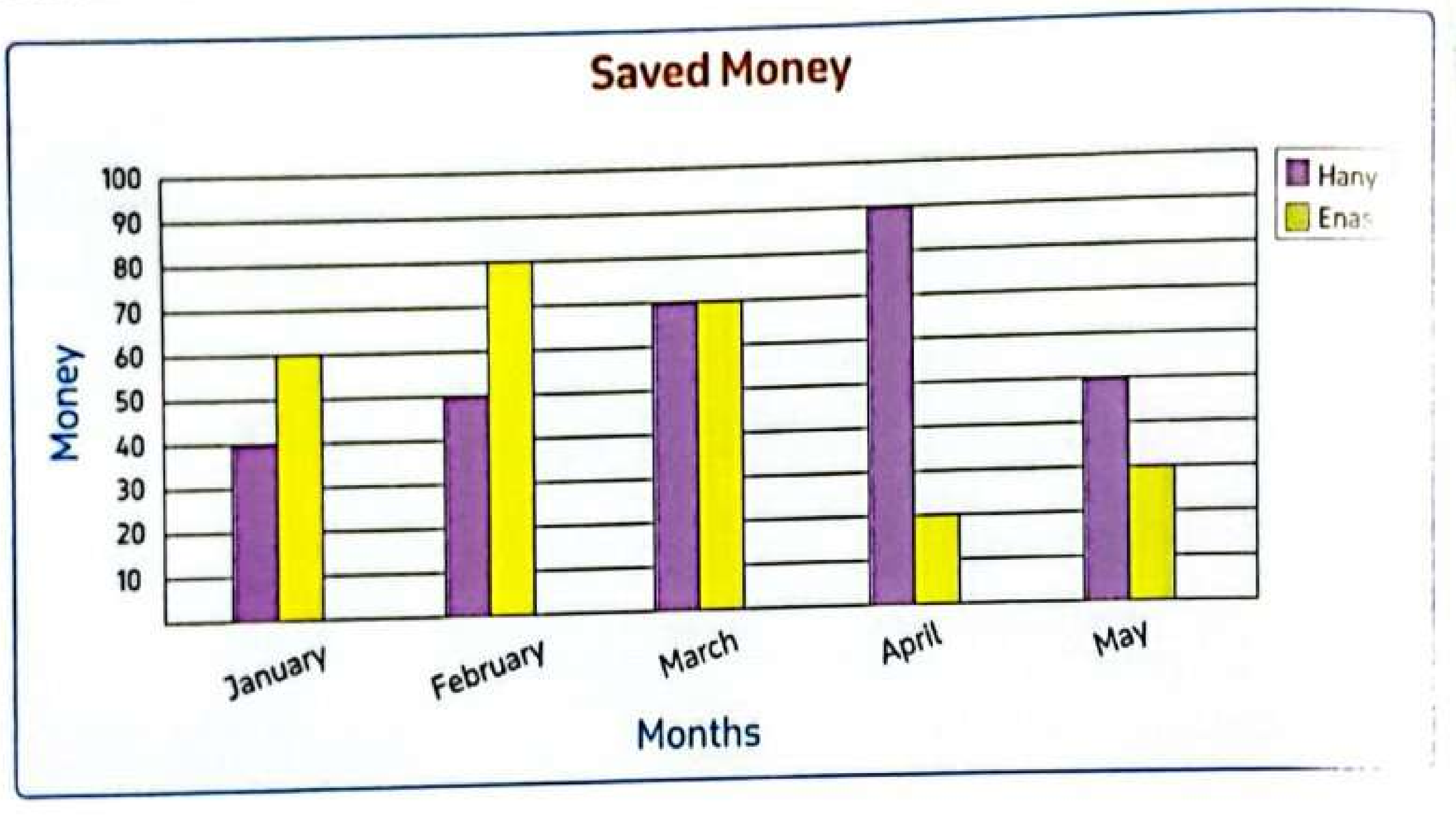
e. How many more students liked tiger than bear?

3. **Double the Data** Review the elements of bar graphs with your teacher. Use the bar graph below to help you.



• **Record two questions that could be answered by this graph.**

4. **The following double bar graph shows the sum of money in pounds which Hany and Enas saved in 5 consecutive months. Observe the graph , then answer the questions.**



a. What is the highest amount did Hany save ? Which month ?

b. What is the highest amount did Enas save ? Which month ?

c. What is the total saved amount for February ?

d. What is the total amount did Hany save in all ?

e. What is the total amount did Enas save in all ?

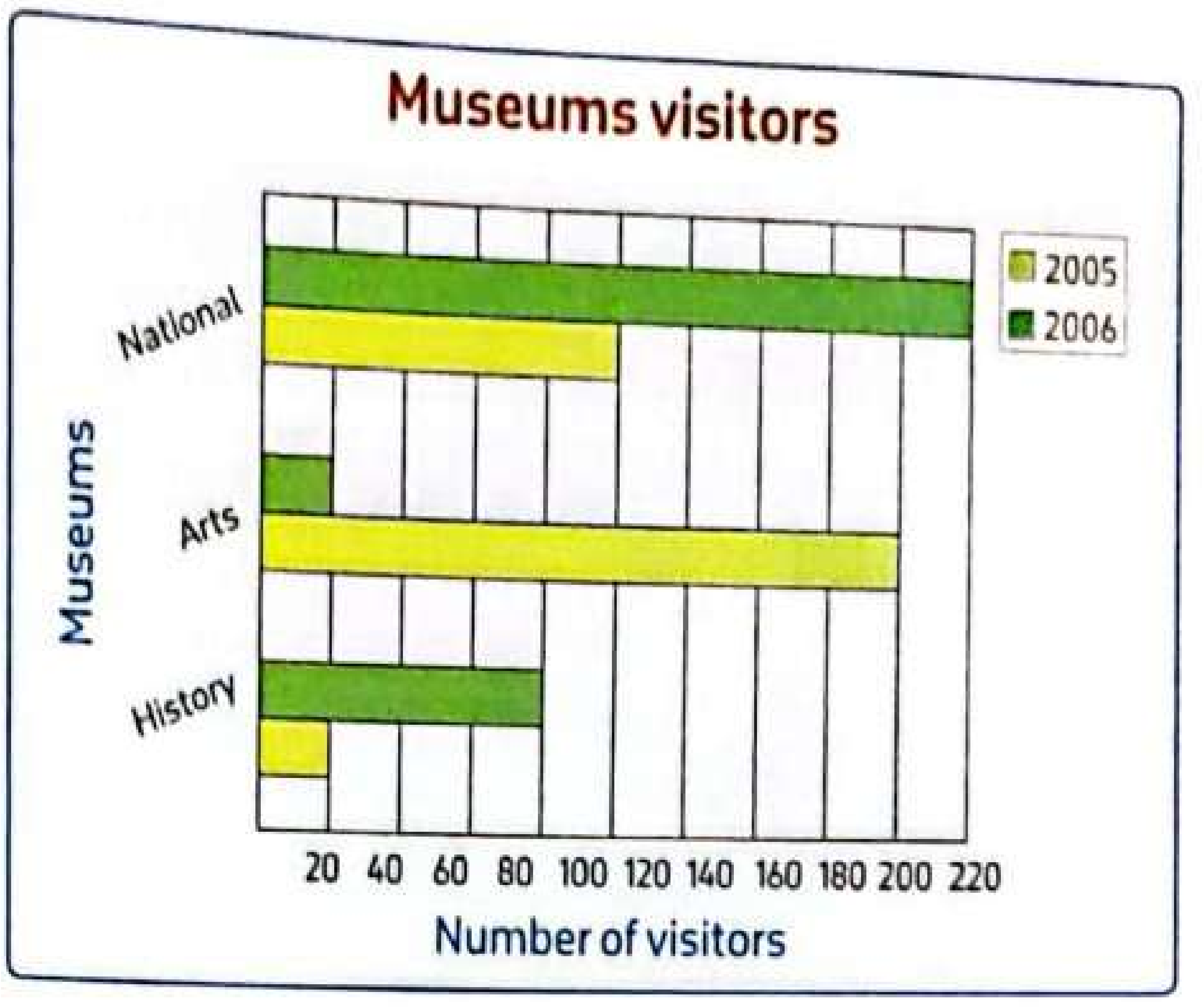
f. Which month did Hany and Enas save the same amount ?

g. Who saved the most ? Who saved the least ?

h. What is the difference between their amount in April ?

5. The following double bar graph shows the number of visitors of three museums in 2005 and 2006. Observe the graph and answer the questions.

a. Which museum has the most number of visitors ? Which year ?



b. Calculate the total number of visitors in Arts museum in the two years.

c. Calculate the total number of visitor in 2005 in the three museums.

d. Calculate the difference in the number of visitors of National museum had between the two years.

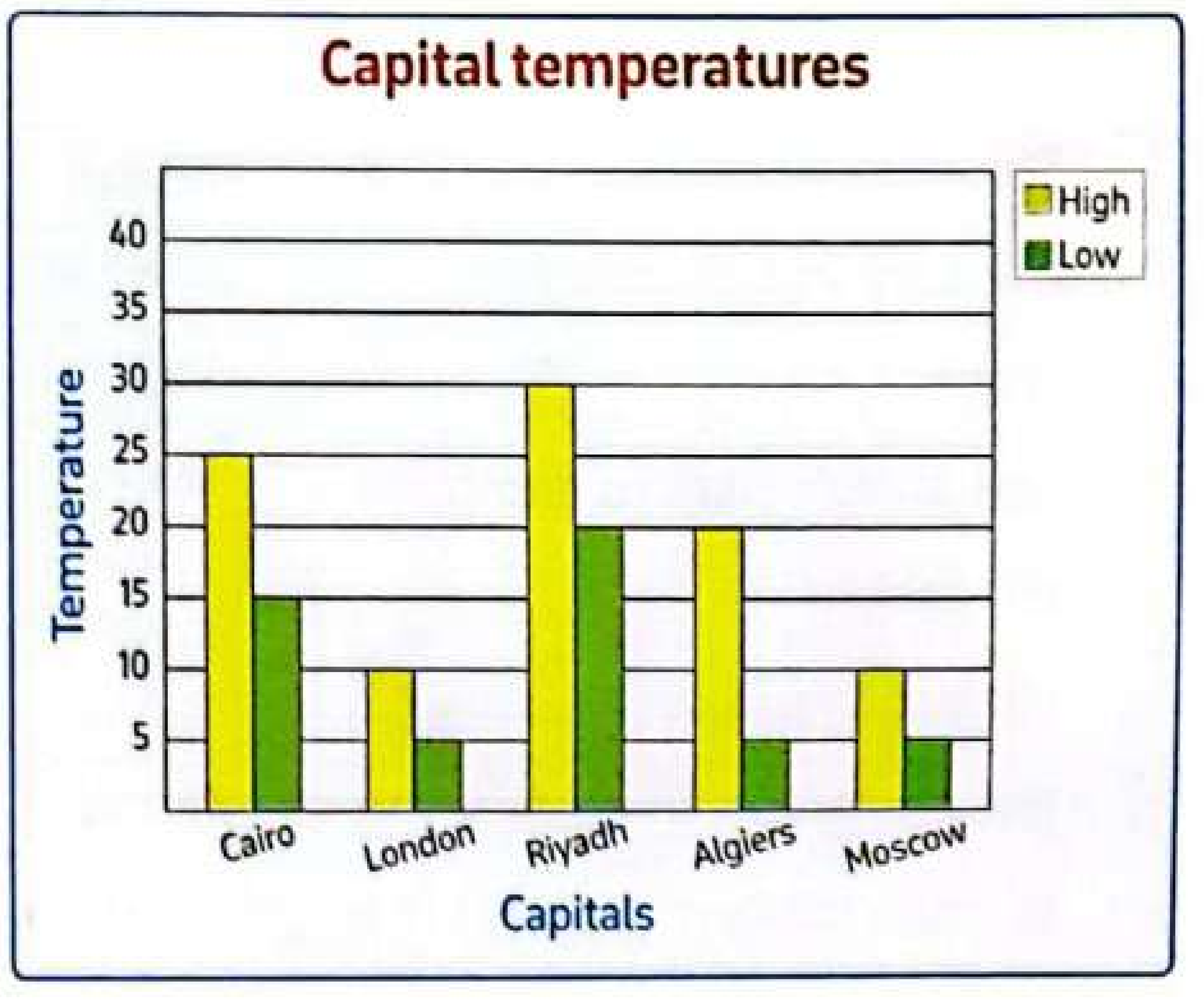
e. Which two museums had the same number of visitors ? Which year ?

f. Calculate the difference in the total number of visitors in the three museums between the two years.

---

6. The following double bar graph shows the highest and lowest temperatures in some of the world's capital cities in a month. Observe the graph, then answer the questions.

a. Which capital had the highest temperature ?

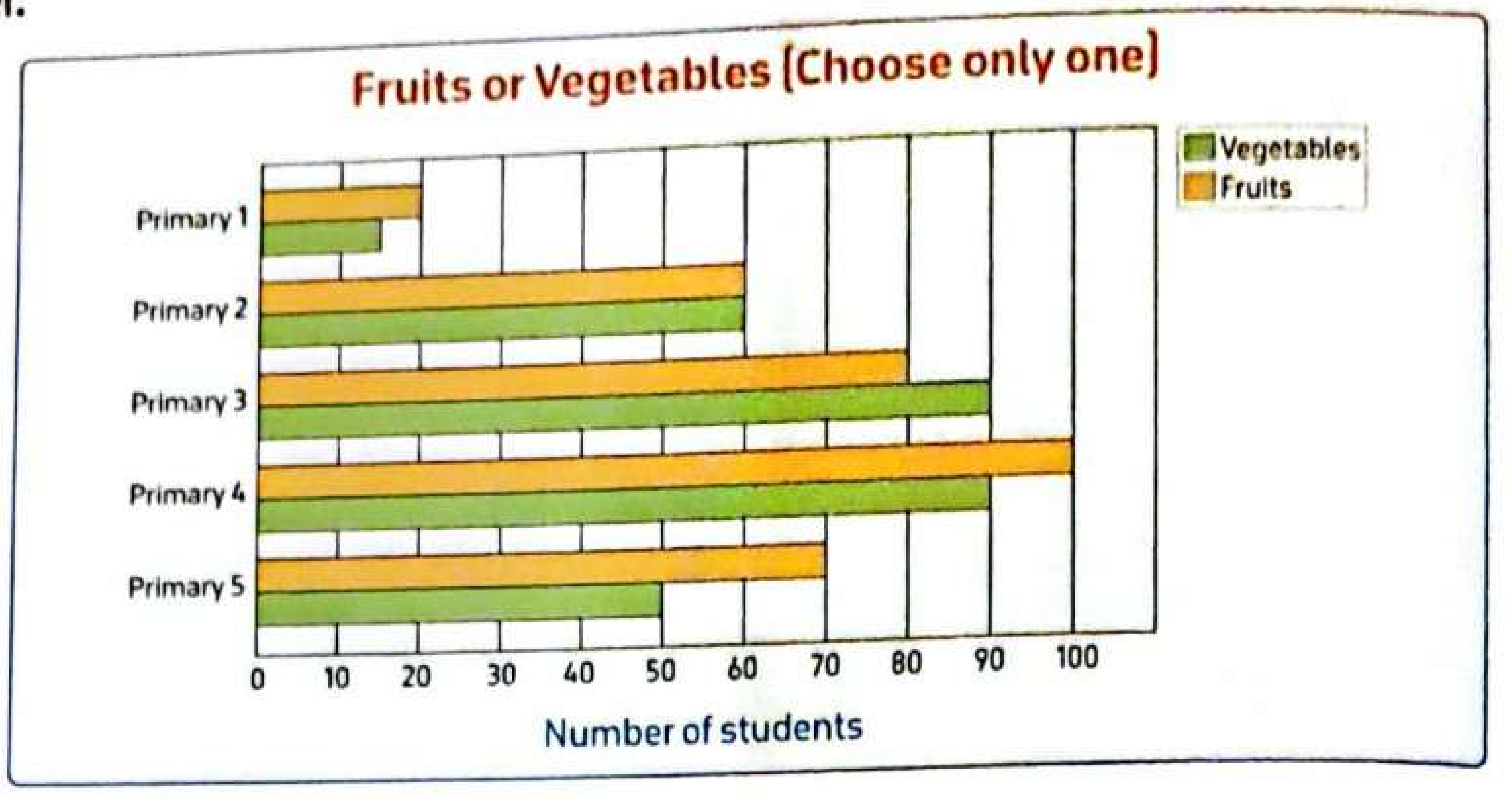


b. What is the lowest temperature in Cairo ?

c. Calculate the difference between the highest and lowest temperatures in Algiers.

d. Calculate the difference between the highest temperatures between Cairo and Moscow.

7. Use the double bar graph to answer the questions about what students in each grade prefer.



a. Which grade has the same number of students who like fruits and vegetables ?

b. Which grade likes vegetables more than fruit ?

c. How many more students in Primary 4 like fruit versus students in Primary 1 ?

d. How many students like fruit in both Primary 1 and 2 ?

e. How many more students in Primary 2 and Primary 3 like vegetables than in Primary 4 and Primary 5 ?

f. How many total students were surveyed ?

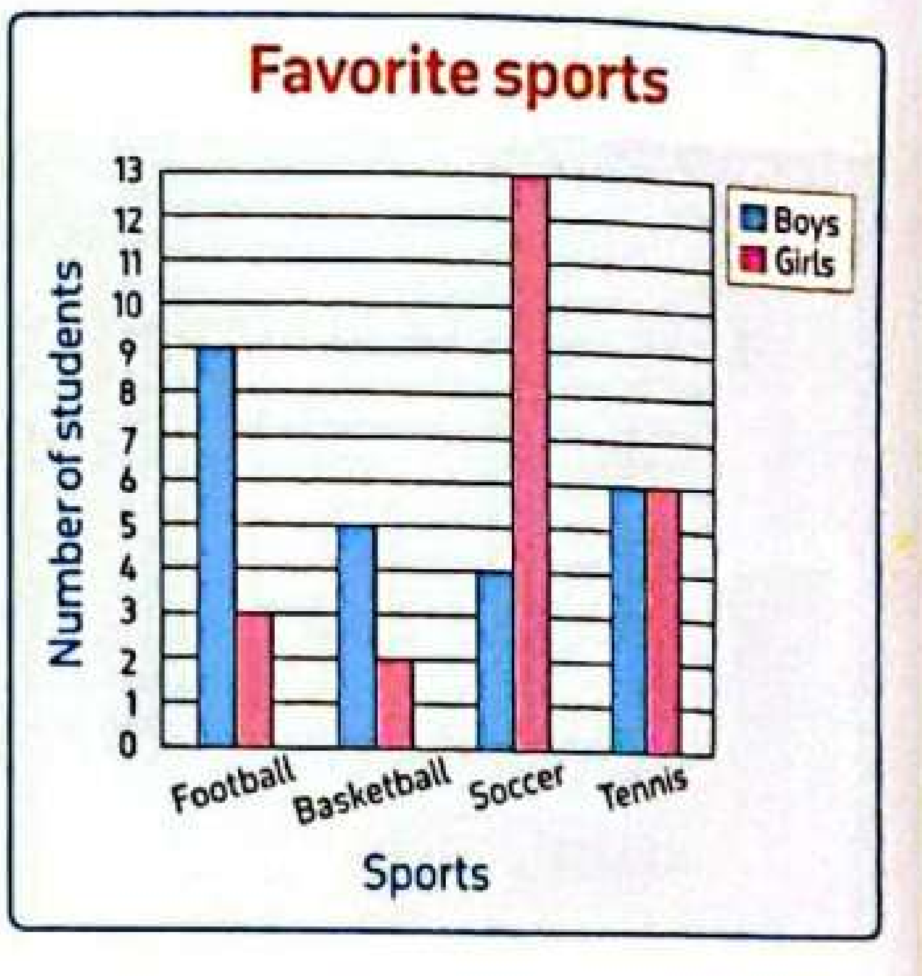
g. Why is this a good data set to use a double bar graph ?

---

8. Andy took a survey of his classmates to find their favorite sports. He recorded the data in a double bar graph.

Use Andy's data to complete the table.

Favorite sports		
Sport	Boys	Girls
Football		
Basketball		
Soccer		
Tennis		



First :

Use the graph to answer the questions.

a. How many more boys than girls chose basketball ?

b. How many students liked football the most ?

c. For which sport is there the greatest difference between boys and girls ?

d. Which is the least popular sport ?

Second :

Use the graph. Circle T if the statement is true and F if the statement is false.

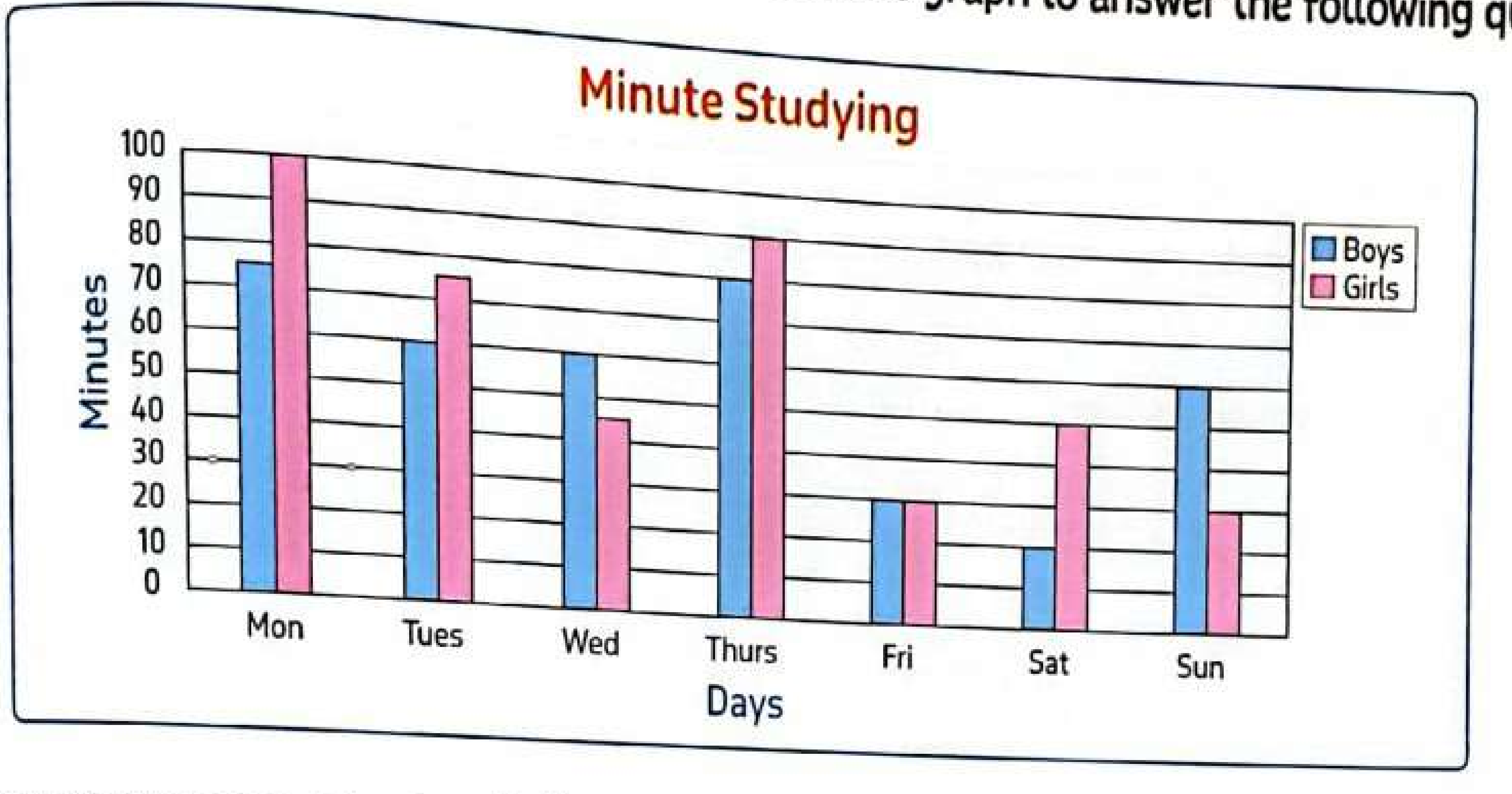
a. Three times as many boys as girls chose football. T F

b. More girls than boys chose soccer. T F

c. Tennis is the most popular sport. T F

d. Soccer is the most popular with boys. T F

9. The double bar graph below compares the average number of minutes boys and girls at Sycamore school study each day of the week. Use this graph to answer the following questions.



a. How many more minutes did boys study on Wednesday than girls ?

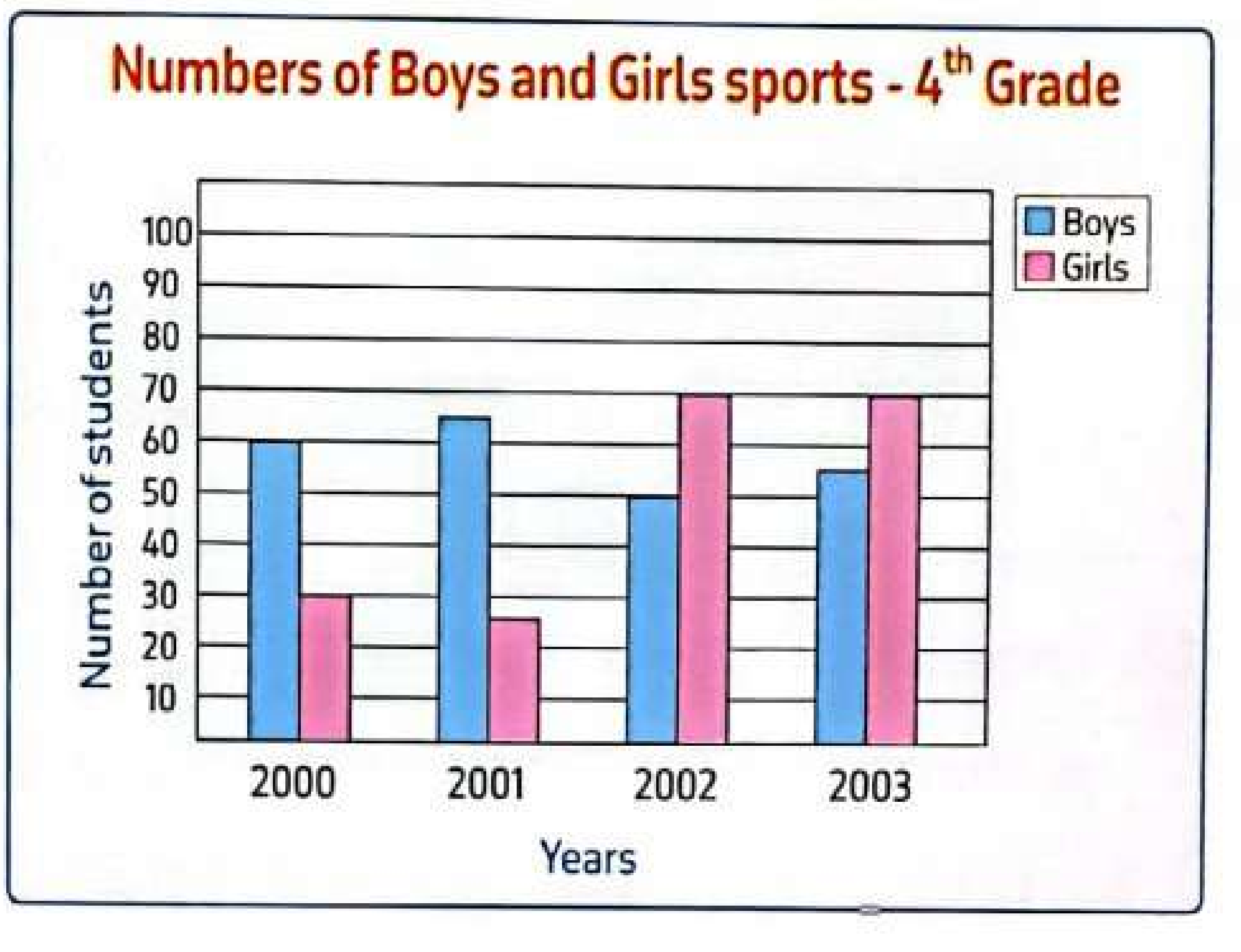
b. On how many days did girls study more than boys ?

c. On which day did boys study the most ?

d. Did more boys or more girls study during the week and by how long?

e. On which day did boys and girls study the same number of minutes?

10. The opposite double bar graph compares the number of fourth-grade boys and girls at a school who played sports over four years. Use this graph to answer the following questions.



a. How many more girls than boys played sports in 2002 ?

b. In how many years did more girls play sports than boys ?

c. In which year did the least number of girls play sports ?

d. In all four years combined. Did more girls or more boys play sports and by how many ?

11. Single or Double ? Look at each table and the data collected. For each table, decide if the data could be presented in a double bar graph. Record your answer and your reasoning.

Table 1 Minimum and Maximum Monthly Temperatures in Cairo.

Month	Minimum	Maximum
January	9	19
February	10	20
March	12	24
April	15	28

Could this data be represented in a double bar graph ?

Table 2 Favorite sports.

Sport	Number of students
Soccer	48
Basketball	24
Swimming	32
Gymnastics	12

Could this data be represented in a double bar graph ?

Table 3 Favorite foods.

Food	Boys	Girls
Baklawa	25	18
Fteer Meshaltet	17	12
Ful Medames	20	26
Tamiya	11	16

Could this data be represented in a double bar graph ?

12. Answer the following questions.

a. Mohab collected some data from his colleagues about their favorite animals.

Circle the most appropriate type of graph that shows Mohab's data.

Line plot | bar graph | pictograph | double bar graph

b. A meteorologist compares rain fall in 2000 and 2020 in different countries in sub-saharan Africa.

Circle the best type of graph that represents this data.

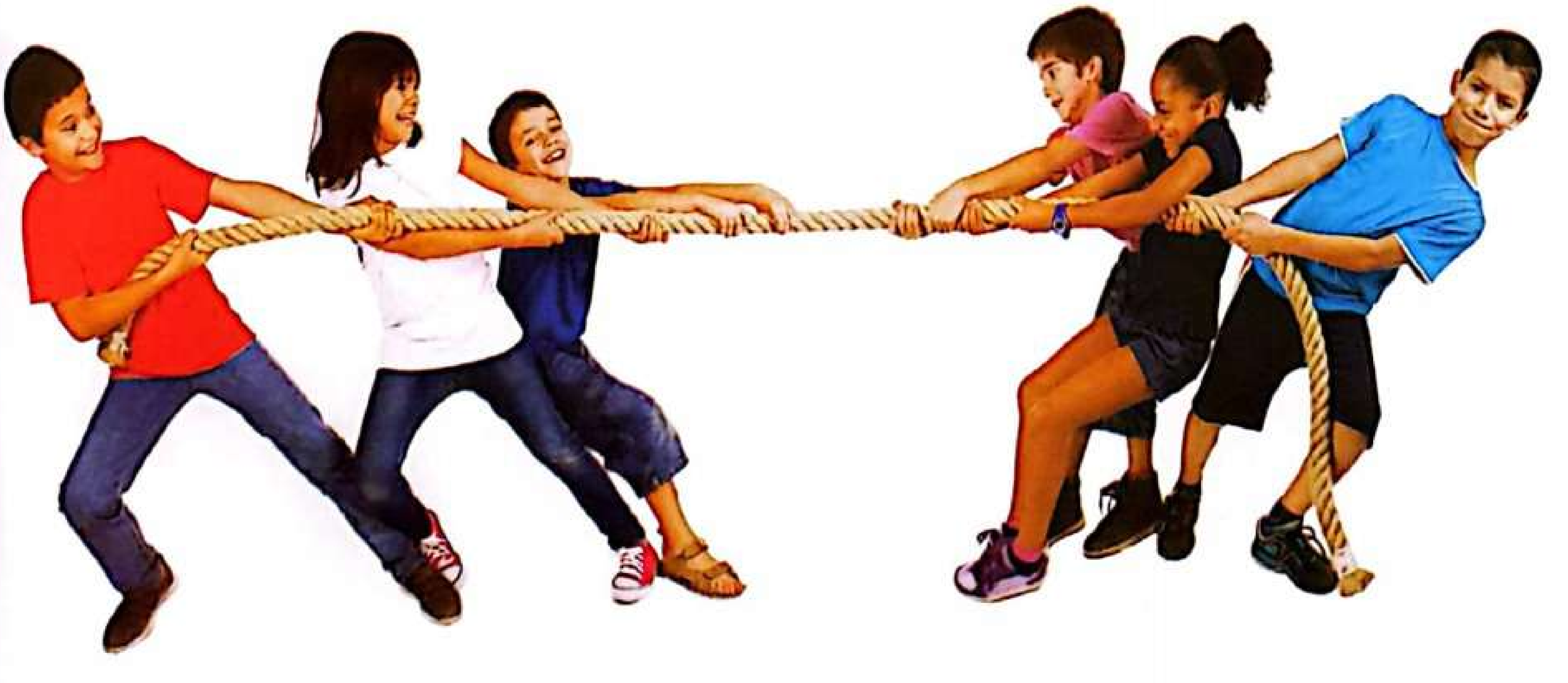
Line plot | bar graph | pictograph | double bar graph

c. The data showing the favorite fast food of boys and girls of grade four.

Fast Food	Pizza	Noodles	Pasta	Burgers
Boys	25	40	15	25
Girls	30	35	30	45

Circle the best type of graph that represents this data.

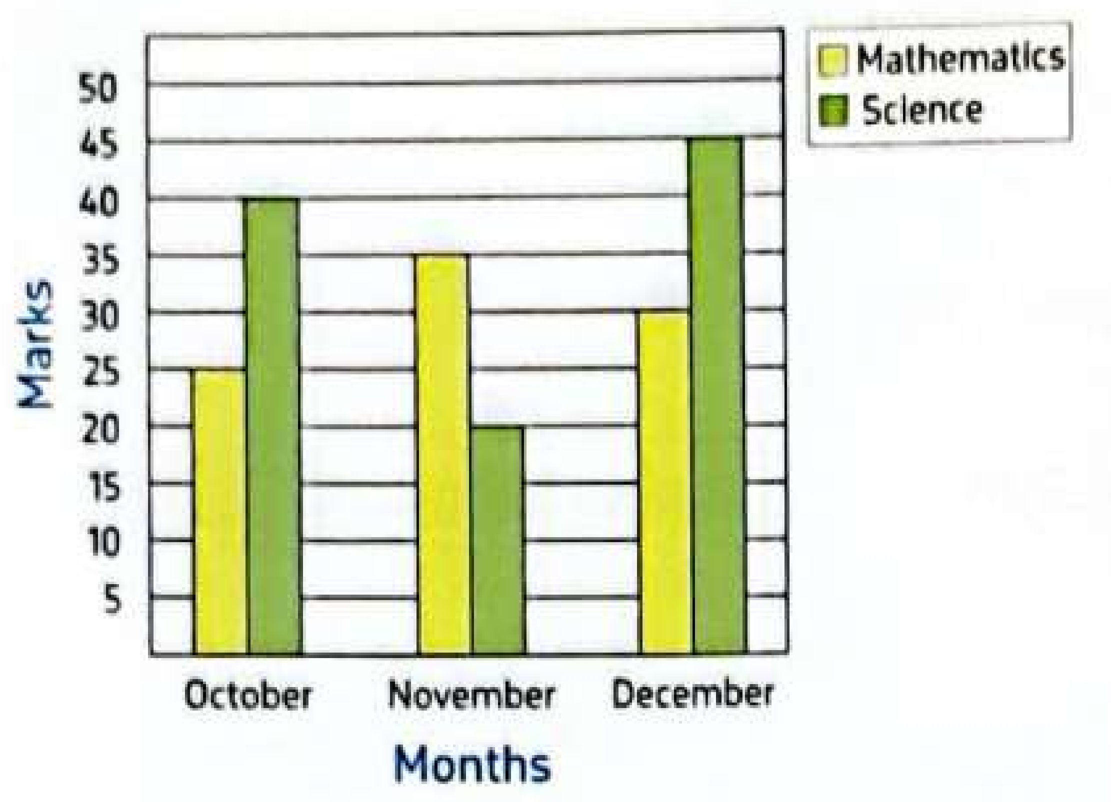
Line plot | bar graph | pictograph | double bar graph



Multiple Choice Questions

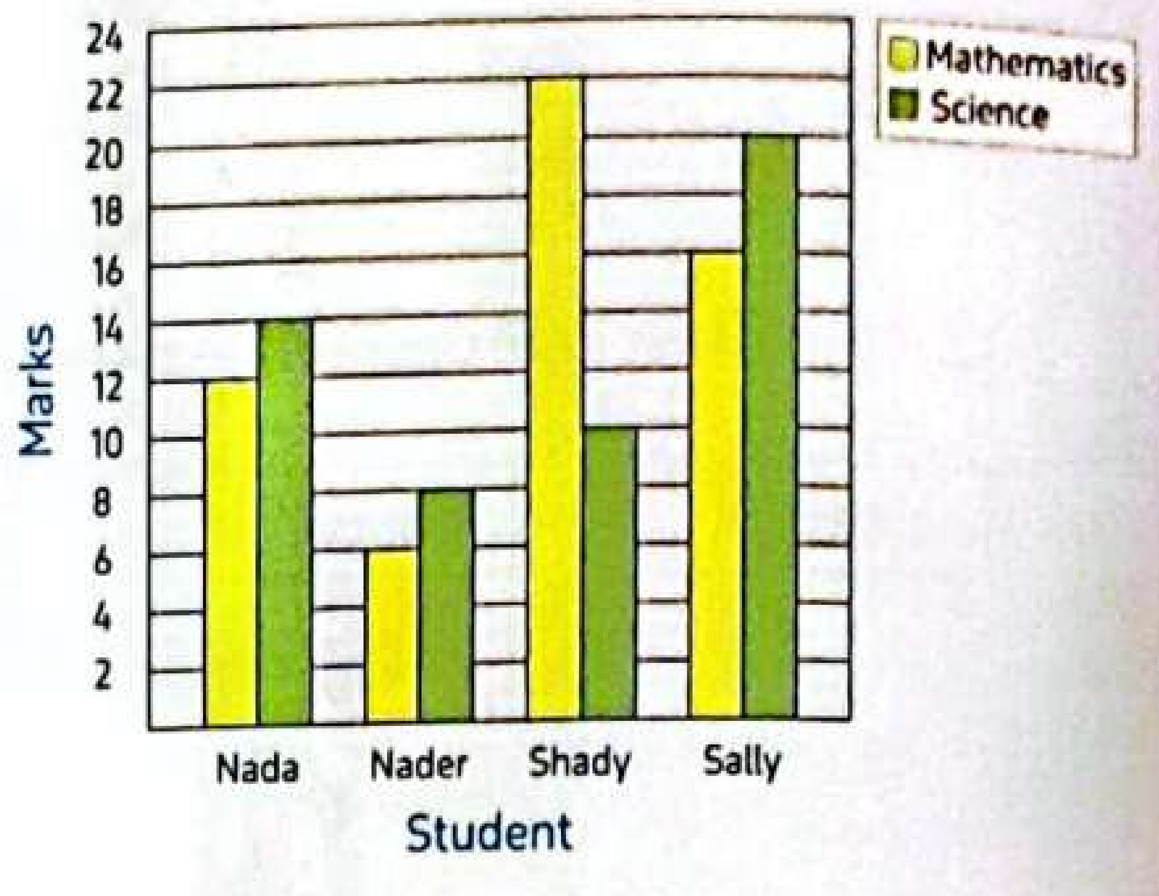
Choose the correct answer.

1. The graph shows a student's marks in Science and Mathematics over three months. In which month was the lowest mark recorded in Mathematics ?



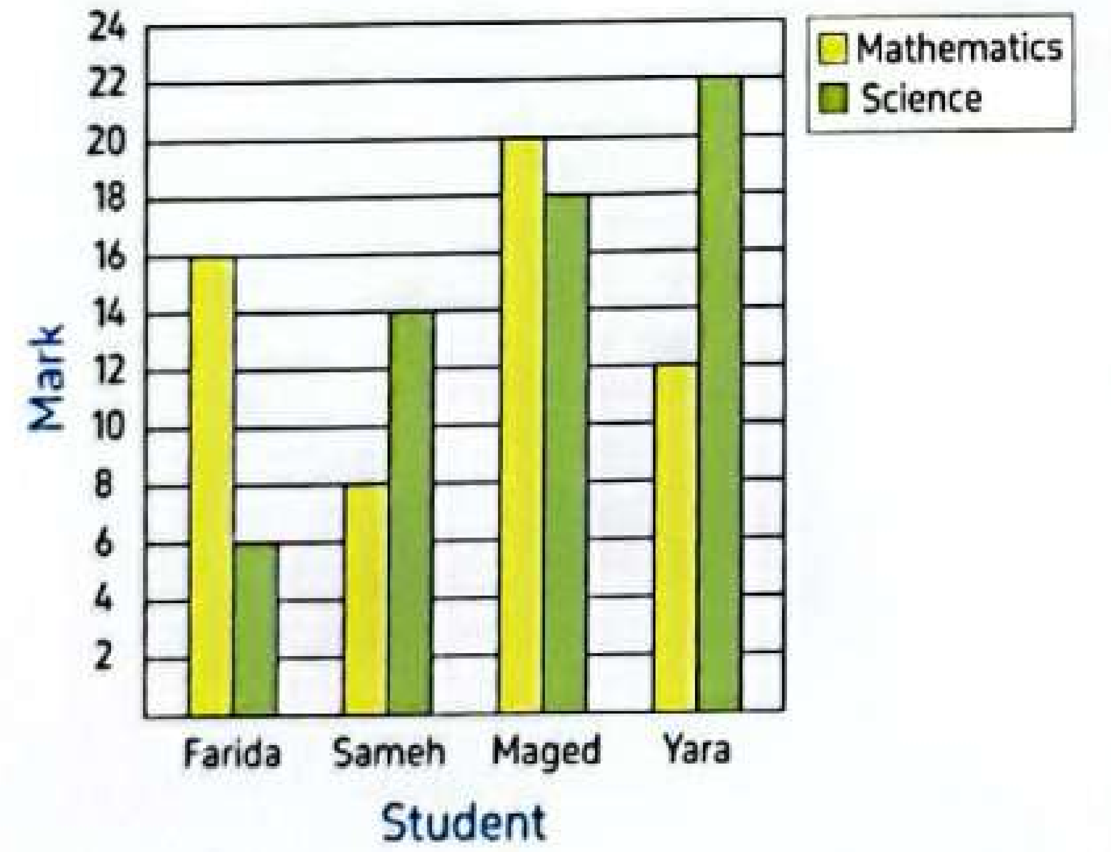
A. October B. December
C. November

2. The graph shows the marks of four students in Mathematics and Science tests. Which student got the highest mark in Mathematics ?



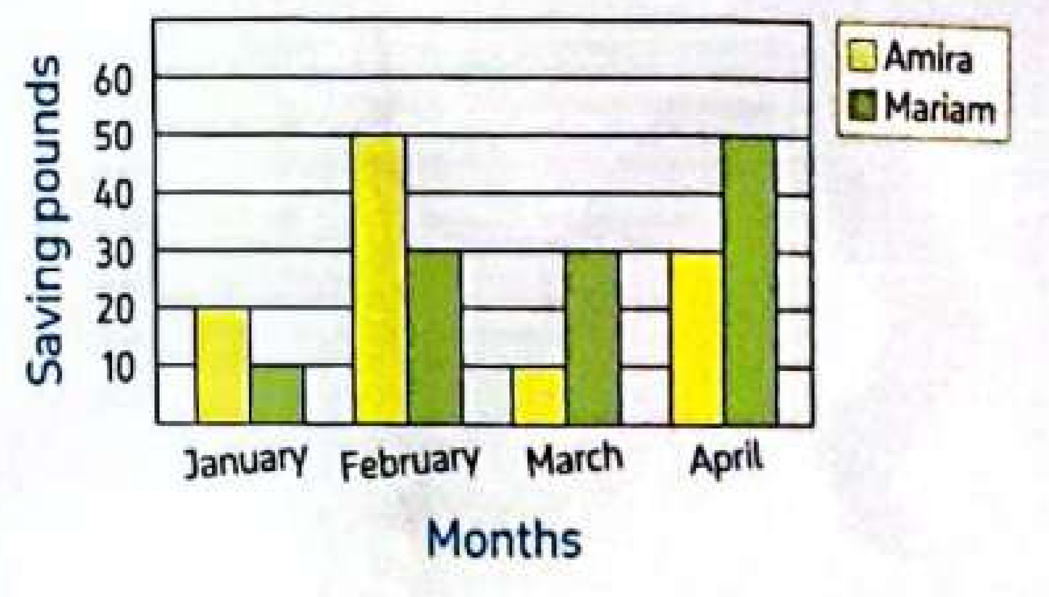
A. Nada B. Shady
C. Sally D. Nader

3. The graph shows the marks of four students in Mathematics and Science. Which student got the lowest mark in Science ?



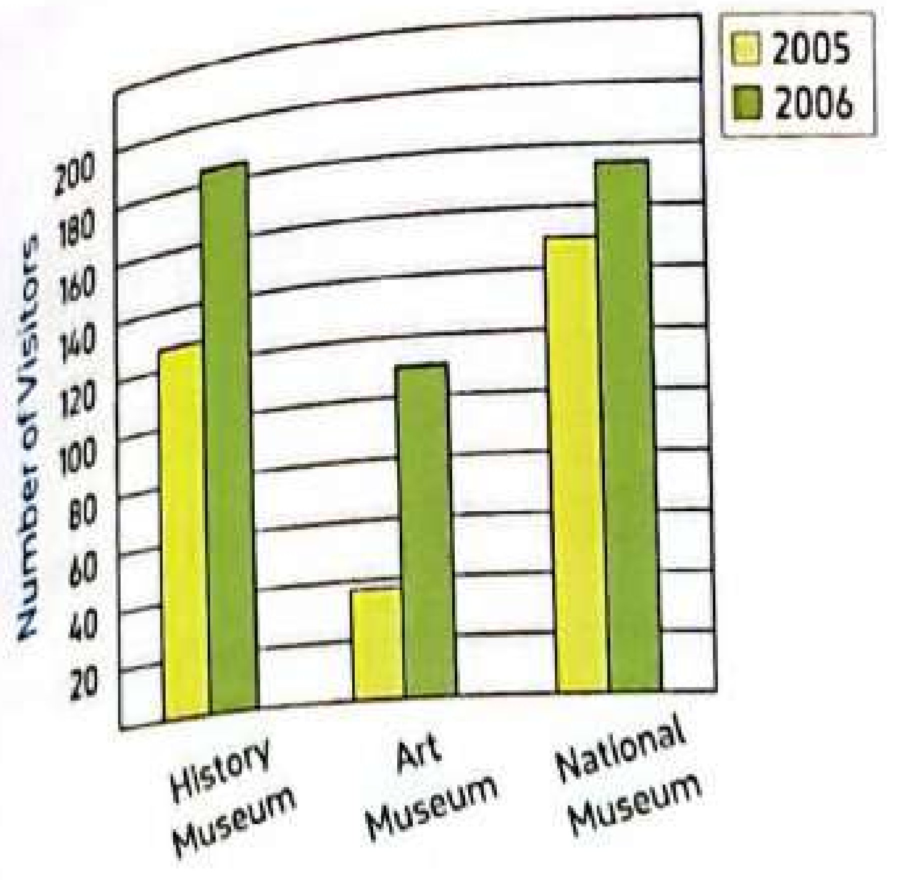
A. Yara B. Farida
C. Sameh D. Maged

4. The graph shows the savings of Mariam and Amira over four months of a year. Who has the highest total savings ?



A. Mariam B. Amira

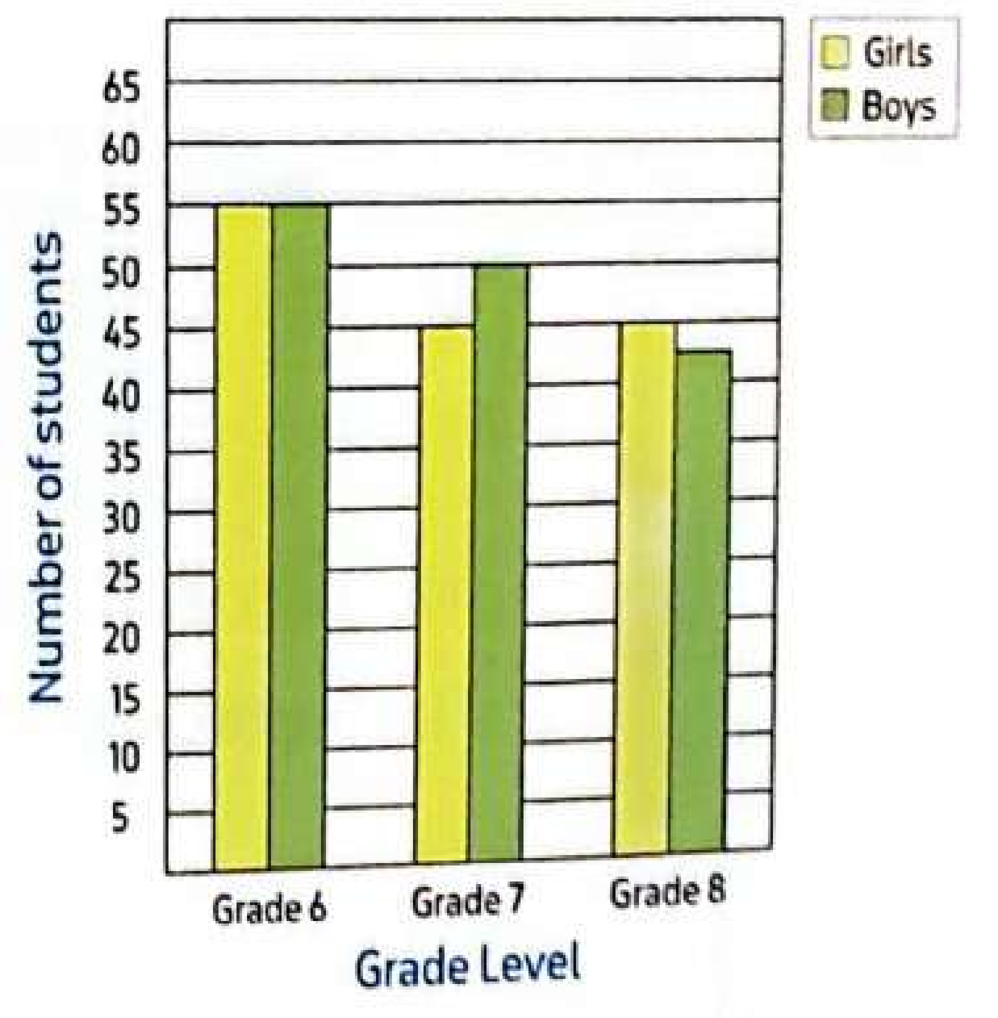
5. The graph shows the number of visitors to three museums in 2005 and 2006. Which museum have more visitors in 2006?



A. National museum B. History museum

C. Art museum

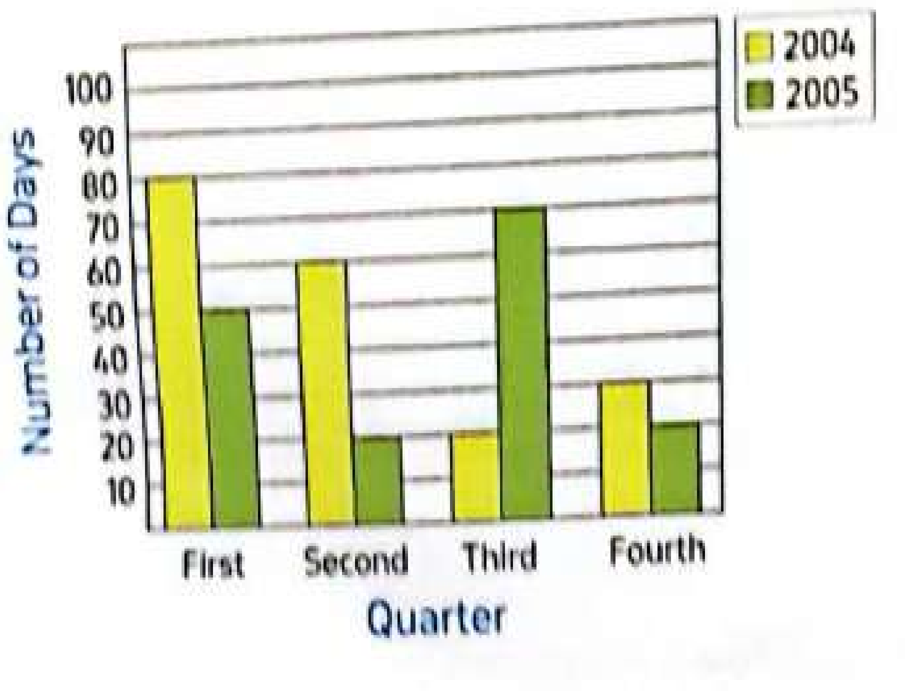
6. The number of students in each grade of a middle school is shown in the graph. Which grade have the same number of girls and boys?



A. Grade 6 B. Grade 7

C. Grade 8

7. This multiple bar graph compares the total number of days students were absent over two academic years. Which quarter has the greatest difference in the number of days?



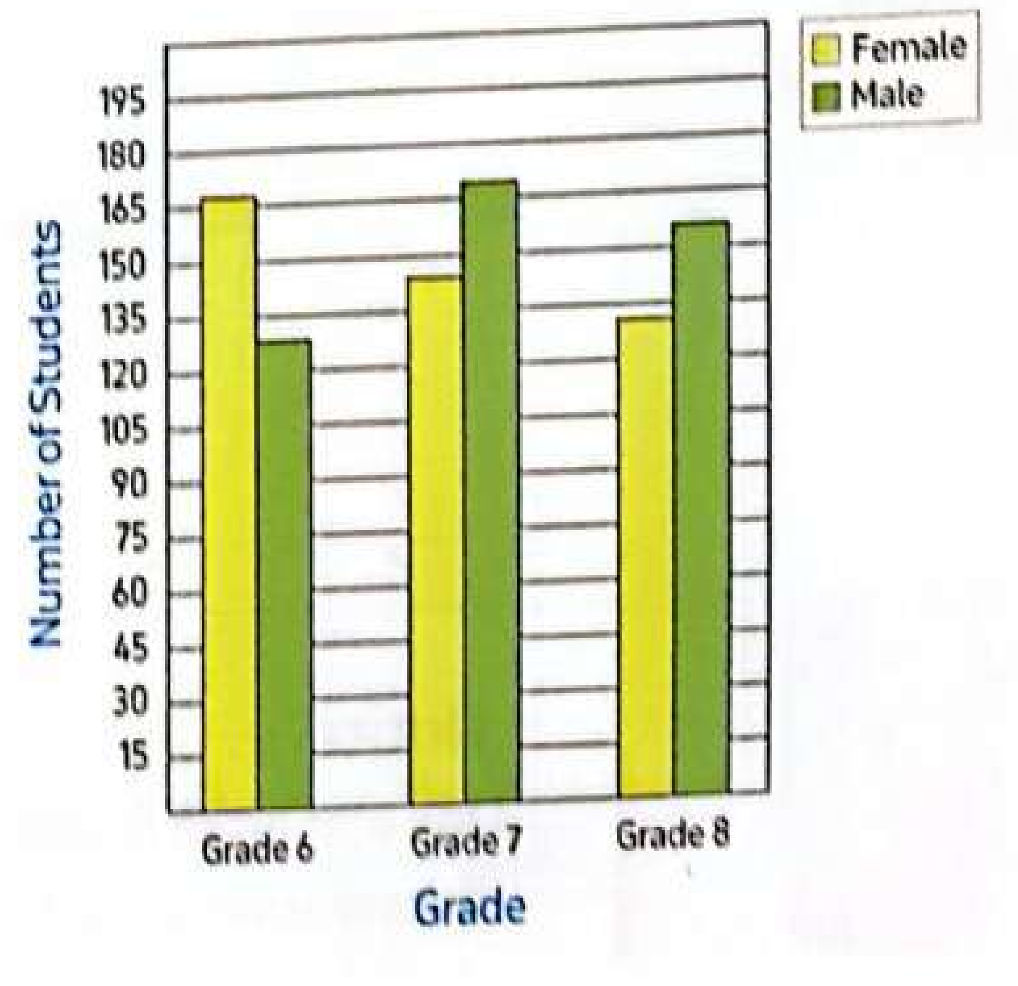
A. The first quarter.

B. The third quarter.

C. The second quarter.

D. The fourth quarter.

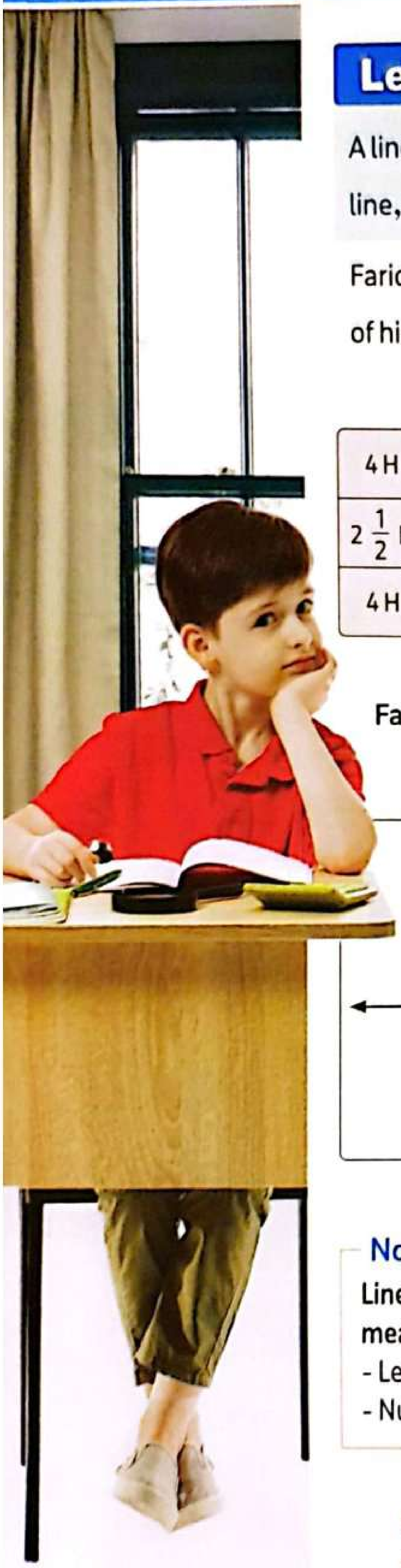
8. The number of students in each grade at a school is shown in the graph. Are there more female students than male students in each grade?



A. Yes. B. No

Lesson 2

11-2 Plotting Along
11-3 Breaking the Bar



Learn Line plot with fractions

A line plot is a graph that shows the frequency of data along a number line, a line plot is used to represent and compare data.

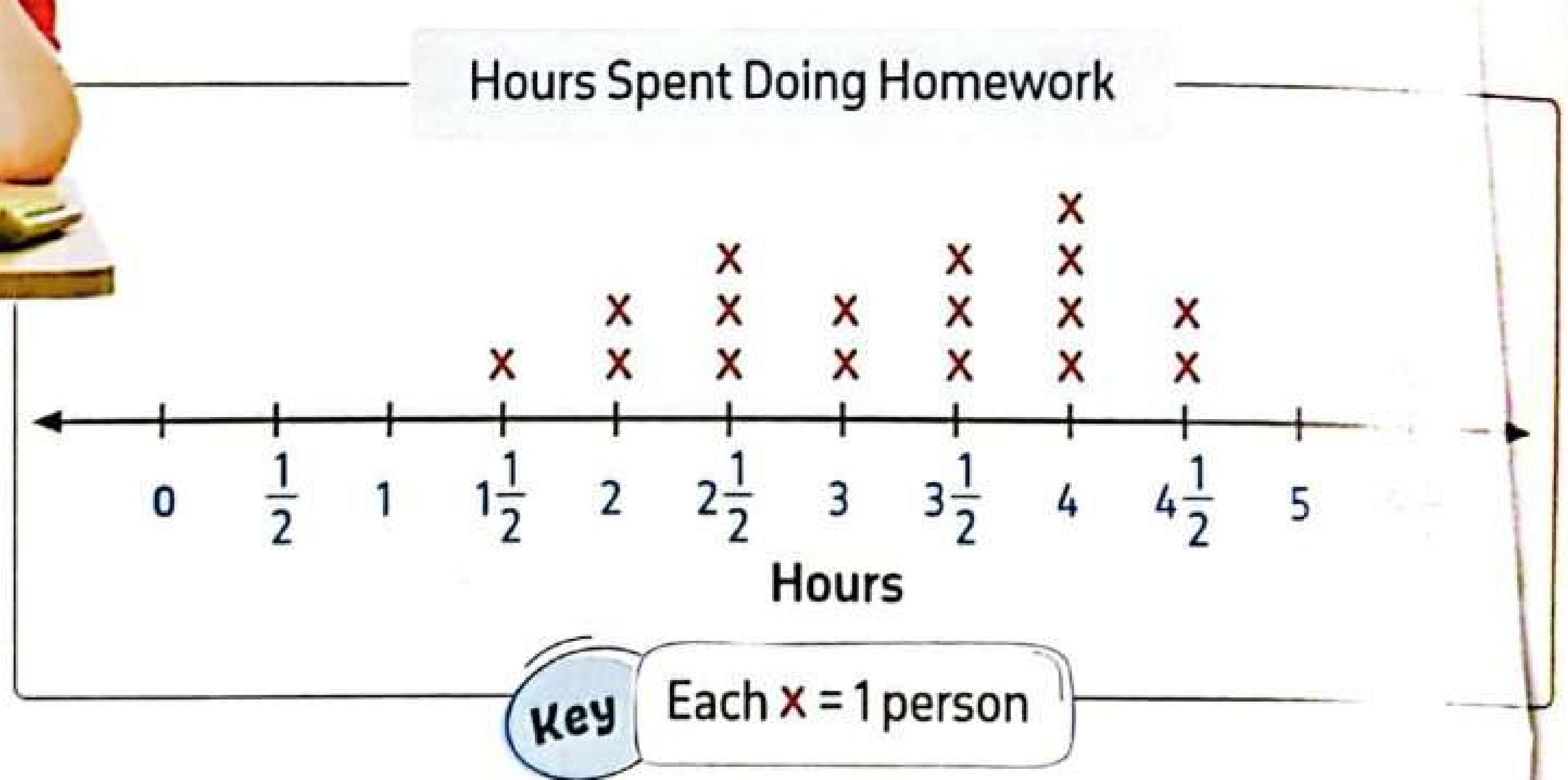
Farid collected data about the number of hours spent doing homework of his friends to the nearest $\frac{1}{2}$ of hour and the data were as follows.

4 H	2 H	$3\frac{1}{2}$ H	$4\frac{1}{2}$ H	3 H	$3\frac{1}{2}$ H
$2\frac{1}{2}$ H	4 H	$1\frac{1}{2}$ H	2 H	$2\frac{1}{2}$ H	$5\frac{1}{2}$ H
4 H	3 H	$2\frac{1}{2}$ H	$4\frac{1}{2}$ H	4 H	$3\frac{1}{2}$ H

Hint

These data contains fractions, it can be represented by a line plot using a number line its interval increases by $\frac{1}{2}$.

Farid represented these data by a line plot.



Notice

Line plot often used when the data shows numbers or measurements such as :

- Lengths.
- Number of members.
- Hours.
- Weights.

Notes for parents :

• Help your child construct a line plot using data with fractions.

Example 1

Amgad has a farm, and just received a shipment of young tomato plants. He wanted to get a clear view of the lengths of plants he received to the nearest $\frac{1}{4}$ dm.

He recorded the lengths in dm as follows :

	$3\frac{3}{4}$	$4\frac{1}{4}$	$3\frac{3}{4}$	$4\frac{1}{2}$	$3\frac{1}{2}$	4
$4\frac{1}{4}$	$4\frac{1}{2}$	4	$3\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{1}{4}$	$3\frac{3}{4}$
$3\frac{1}{2}$	$4\frac{1}{4}$	$3\frac{3}{4}$	$4\frac{1}{2}$	$4\frac{1}{4}$	3	$4\frac{1}{4}$

Represent these data by a line plot, then answer the questions.

a. Which plant height occurred most often ?

b. Which heights were recorded for the same number of plants ?

c. How many plants did Amgad measure all together ?

d. What was the height of each of the tallest and the shortest plants ?

e. How many total plants measured 4 dm to $4\frac{1}{2}$ dm ?

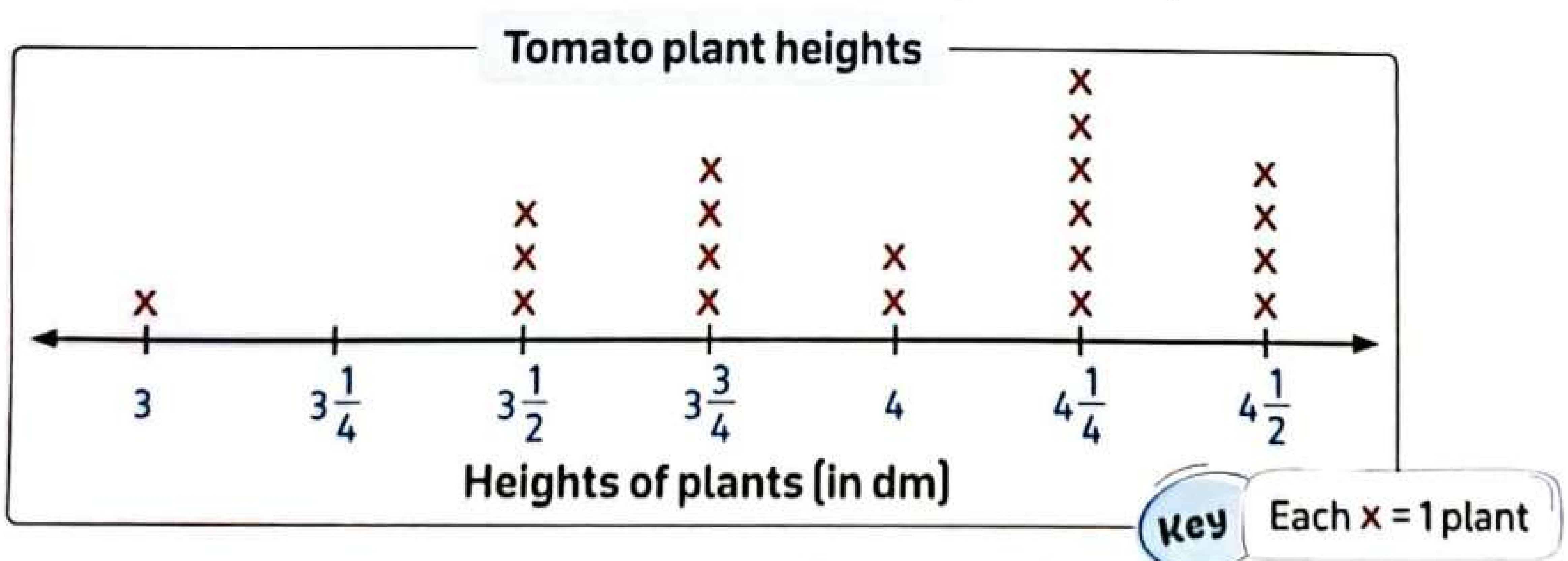
f. How many more plants were $4\frac{1}{4}$ dm than $3\frac{1}{2}$ dm ?

Solution

To represent these data by a line plot follow the steps.

Step 1 : Draw a number line. Because the smallest length is 3 dm and the tallest length is $4\frac{1}{2}$ dm, you can use a scale of 3 to $4\frac{1}{2}$ and an interval of $\frac{1}{4}$, write a title.

Step 2 : Put an "X" above the number that represents the length of each plant.



a. $4\frac{1}{4}$ dm

b. $3\frac{3}{4}$ dm and $4\frac{1}{2}$ dm

c. 20 plants.

d. $4\frac{1}{2}$ dm , 3 dm

e. 2 + 6 + 4 = 12 plants.

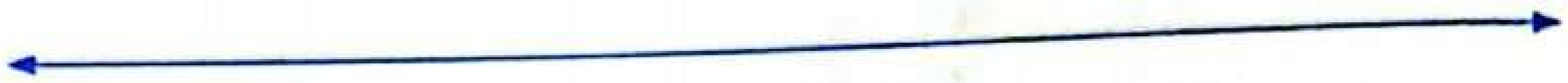
f. 6 − 3 = 3 plants.

• Ask your child to think when fractions could be used in a graph.

Check your understanding

Use the following data to make a line plot.

$6\frac{1}{2}$	7	5	7	7	6	$6\frac{1}{2}$	$7\frac{1}{2}$	$5\frac{1}{2}$	$6\frac{1}{2}$
$5\frac{1}{2}$	6	$6\frac{1}{2}$	$6\frac{1}{2}$	$5\frac{1}{2}$	7	5	6	$6\frac{1}{2}$	$5\frac{1}{2}$



Learn Construct a double bar graph

Double bar graph helps to compare or present more than one kind of information, situations, or events instead of just one by using bars.

Here is a table of data shows the favorite sports for boys and girls.

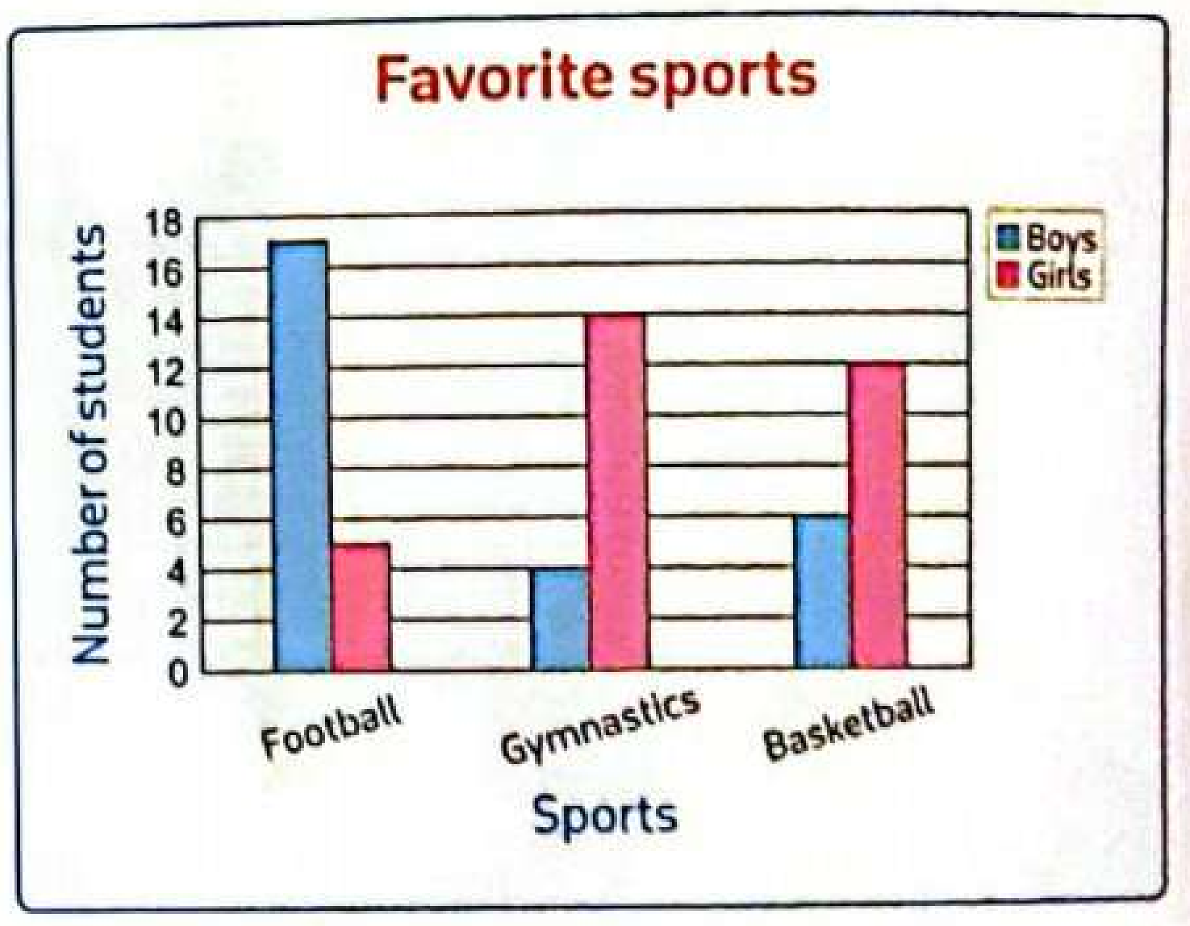
Favorite sports

Sport	Boys	Girls
Football	17	5
Gymnastics	4	14
Basketball	6	12

By following the following steps to represent the above data, the graph will be as follows:

How to construct a double bar graph ?

1. Decide what title you will give the graph.
2. Decide if you want horizontal or vertical bars.
3. Choose a suitable scale.
4. Put label on the axes.
5. Draw the bars.
6. Give two different colors for differentiating two data.



Hint

Most data contains even numbers. So, scale of 2 is more suitable.

Notes for parents :

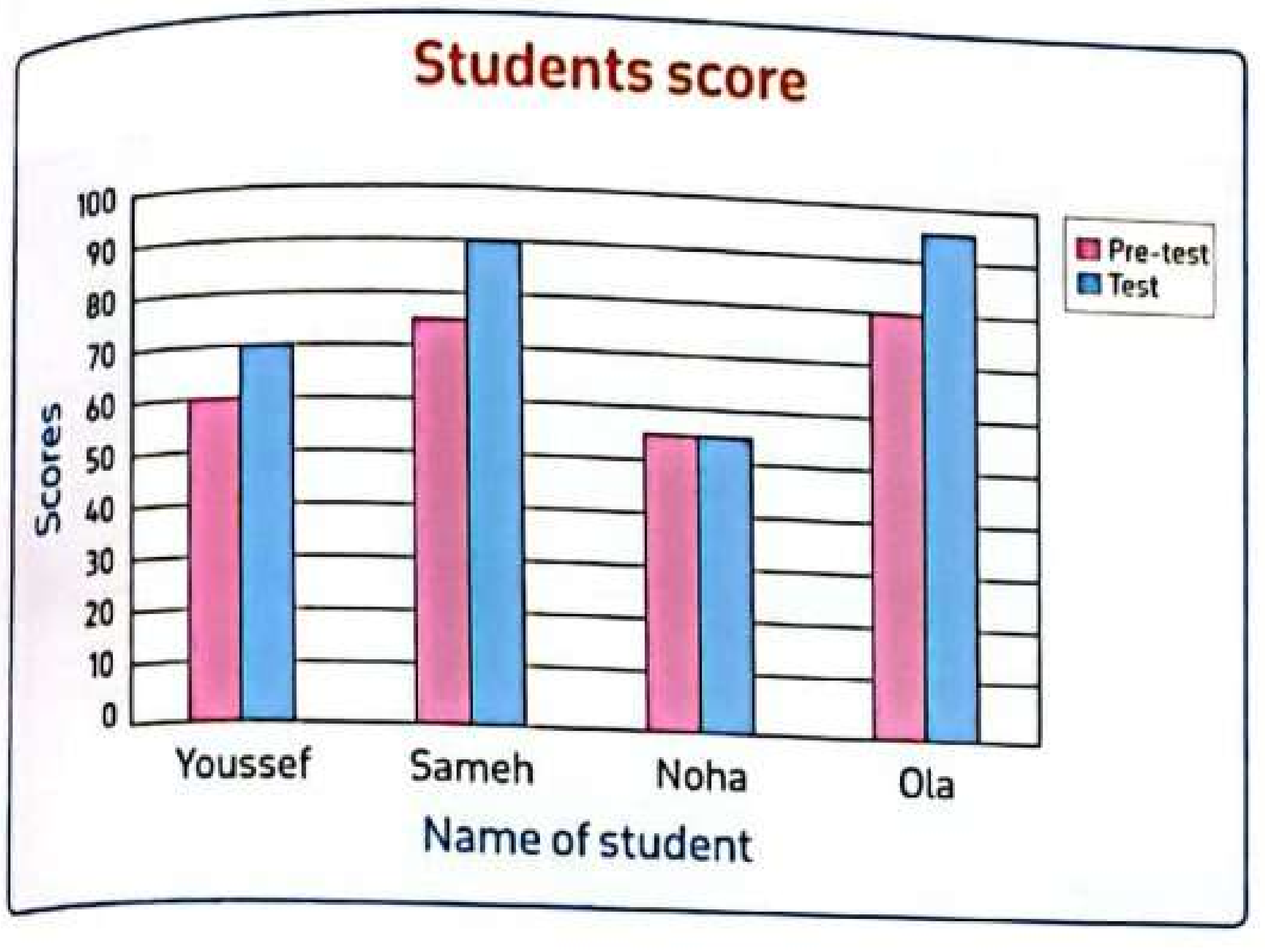
- Help your child choose the suitable scale when he/she construct a double bar graph.

Example 2

Scores obtained by the four friends Youssef, Sameh, Noha and Ola in the pre-test and test are given below. Represent these data.

Students score		
Name of Student	Pre-test	Test
Youssef	60	70
Sameh	75	90
Noha	55	55
Ola	80	95

Solution



Hint

Most data contains big numbers.
So, scale of 10 is more suitable.

Example 3

The following data shows the walking distance to the nearest $\frac{1}{4}$ kilometers of four friends in two different days.

Name / Day	Nada	Nader	Hady	Sally
First day	$1\frac{1}{2}$	$\frac{3}{4}$	$2\frac{3}{4}$	2
Second day	$1\frac{3}{4}$	1	$1\frac{1}{4}$	$2\frac{1}{2}$

Represent this data by using a double bar graph, then answer the following questions.

a. Who walked the tallest distance in first day ?

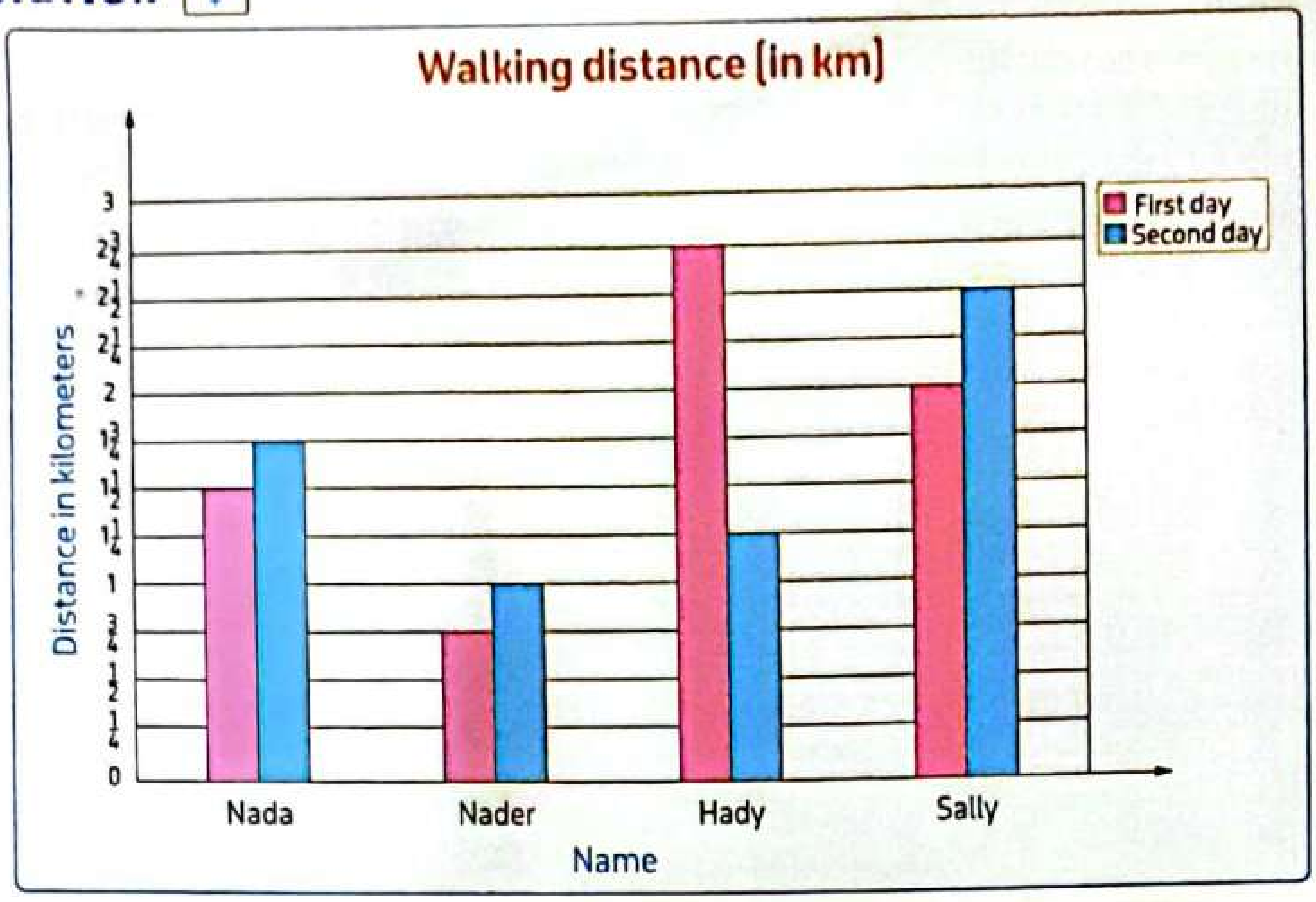
b. Who walked the shortest distance in second day ?

c. What is the difference between the tallest distance and the shortest distance in second day ?

d. Who walked the same distance as Nada in the second day in the two days ?

• Help your child to construct a double bar graph using data with fractions.

Solution



Hint
Most data contains fractions. So scale of $\frac{1}{4}$ is more suitable.

a. Hady

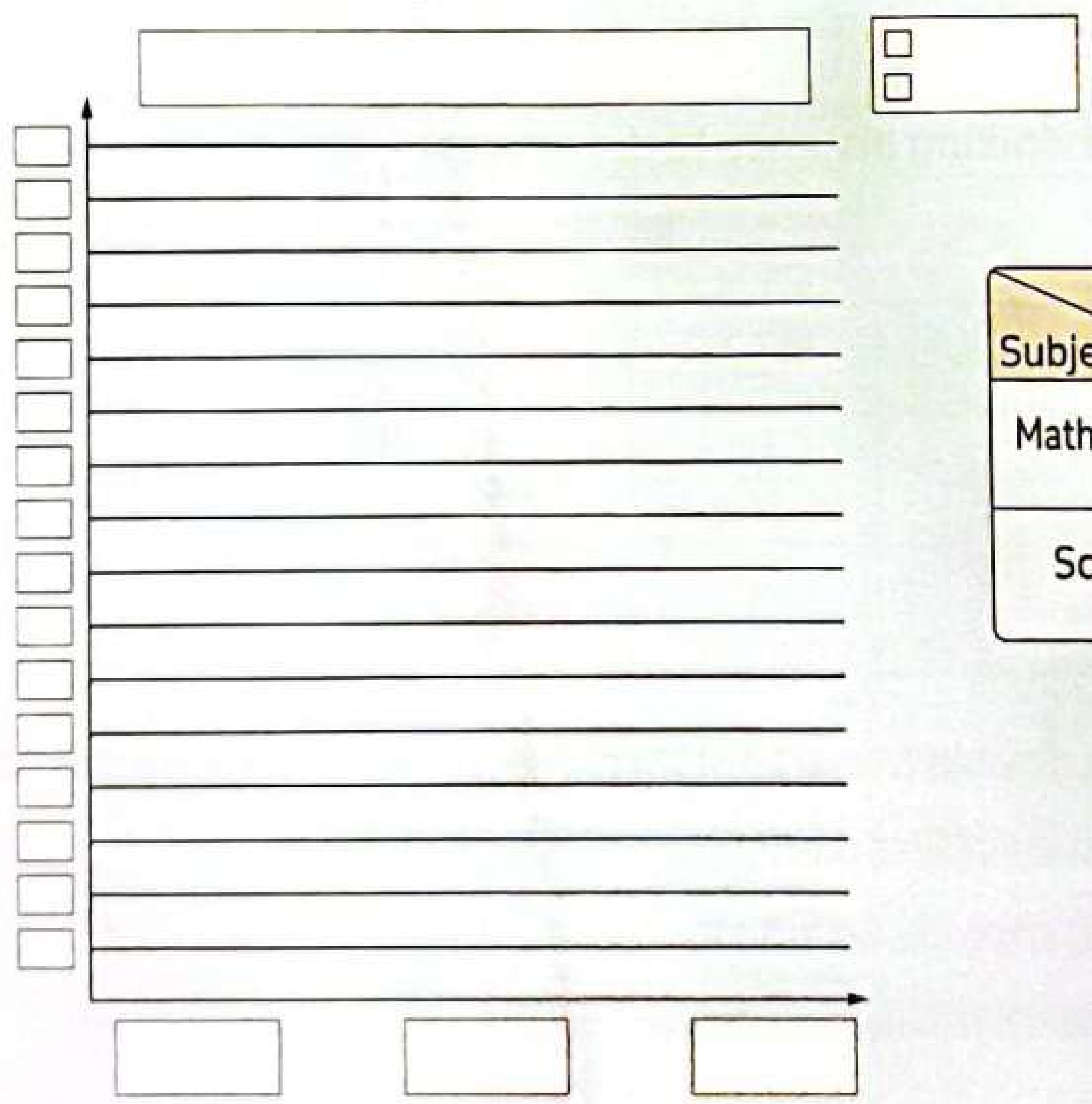
b. Nader

c. $2\frac{1}{2} - 1 = 1\frac{1}{2}$ kilometers

d. Nader ($\frac{3}{4} + 1 = 1\frac{3}{4}$ kilometers as Nada walked in the second day)

Check your understanding

▸ **The following data shows the marks of three students in Mathematics and Science tests and full mark is 10.**
Represent these data using double bar graph.



Subject \ Name	Andy	Reem	Nour
Mathematics	7	6	$5\frac{1}{2}$
Science	$7\frac{1}{2}$	$6\frac{1}{2}$	8

Notes for parents :

• Ask your child why a double bar graph would be a good choice to show the data in this page.

Exercise 24

11-2 Plotting Along
11-3 Breaking the Bar

● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING   From the school book

First : Line plot

1. Use the following data to make a line plot, then answer the questions.

a. 11 kg , $12\frac{1}{4}$ kg , $11\frac{3}{4}$ kg , $11\frac{1}{2}$ kg , 12 kg , $11\frac{1}{2}$ kg , $11\frac{1}{4}$ kg , $11\frac{1}{4}$ kg , $11\frac{1}{2}$ kg , 12 kg

1. Give the line plot a title.
2. What is the most common record ?
3. What is the least common record ?

b. 3 m , $3\frac{1}{3}$ m , 4 m , $4\frac{1}{3}$ m , $3\frac{2}{3}$ m , $3\frac{1}{3}$ m , $4\frac{2}{3}$ m , $4\frac{1}{3}$ m , 4 m , 3 m , $3\frac{1}{3}$ m , $4\frac{2}{3}$ m.

1. Give the line plot a title.
2. What is the most common record ?
3. What is the least common record ?

2. The following data show the ages of nursery's kids to the nearest $\frac{1}{2}$ of year.

Represent the data on the line plot. Give the line plot a title.

1	$5\frac{1}{2}$	$2\frac{1}{2}$	2	$3\frac{1}{2}$	1	3
2	4	1	$5\frac{1}{2}$	2	$3\frac{1}{2}$	$2\frac{1}{2}$

Answer the questions.

a. How many children were 1 year old ?

b. How many children were 4 years old ?

c. How many children were 2 years old to $3\frac{1}{2}$ years old?

d. How many more children were 2 years old than 4 years old?

e. How many children were at the nursery in all?

---

3. **Survey Says.** The titles identify data that could be collected and graphed. Read the titles and answer the questions.

a. Line plot graph frequency of data (how many times each data point appears). Circle the titles that could be plotted on a line plot.

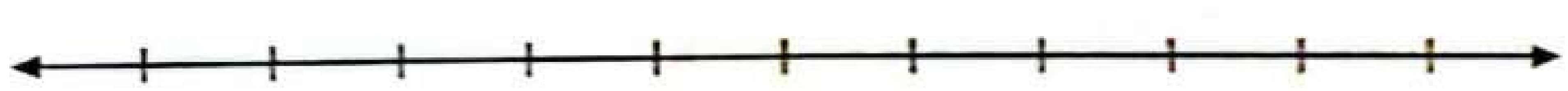
Number of People in Our Families	Our Heights
Our favorite foods	Our shoe sizes
Our favorite animal	Distance from home to school
Weight of our school bags	Our favorite movie
Minutes spent playing outside	Our favorite free time activity

b. Choose one of the titles you circled in the previous item and draw what the line plot might look like. Use a sheet of paper or graph paper to create your line plot.

---

4. The following data show the marks of mathematics test for students. Create a line plot for the given data. Use the line plot to answer the following questions.

18	19	17	$18\frac{1}{2}$	20	$16\frac{1}{2}$	$18\frac{1}{2}$	$19\frac{1}{2}$	$17\frac{1}{2}$	20	17	$18\frac{1}{2}$
17	$17\frac{1}{2}$	$18\frac{1}{2}$	$17\frac{1}{2}$	19	$18\frac{1}{2}$	$17\frac{1}{2}$	17	$18\frac{1}{2}$	20	18	$17\frac{1}{2}$



a. How many students are in all?

b. What is the least mark? What is the highest mark?

c. What is the most common mark did the students get?

d. How many students got 18 marks or more?

e. How many more students got $17\frac{1}{2}$ marks than 20 marks?

f. Write one statement about the data.

5. **Going the Distance.** These data show the distance from home to school for students. The data are given in kilometers. Create a line plot for the given data. Use your line plot to answer the questions.

Hint

The title is already written. Remember to label your number line and include a key.

$\frac{3}{5}$ km; $\frac{2}{5}$ km; $\frac{2}{5}$ km; $\frac{5}{5}$ km; $\frac{4}{5}$ km; $\frac{2}{5}$ km; $\frac{4}{5}$ km; $\frac{5}{5}$ km; $\frac{4}{5}$ km; $\frac{4}{5}$ km; $\frac{1}{5}$ km

a. How many students were surveyed?

b. What is the shortest distance any student lives from school?

c. What is the farthest distance any student lives from school?

d. What is the most common distance students live from school?

e. What are the least common distances students live from schcool?

f. Write one statement about the data.

---

6. These data show the weights of some containers hold an amount of liquid. The data are given in liters. Create a line plot for the given data. Give the line plot a title. Use the line plot to answer the questions.

$\frac{3}{7}$ L, $\frac{4}{7}$ L, 1 L, $\frac{3}{7}$ L, $\frac{4}{7}$ L, $\frac{6}{7}$ L, $\frac{3}{7}$ L, $\frac{1}{7}$ L, $\frac{3}{7}$ L, $\frac{6}{7}$ L, $\frac{6}{7}$ L, $\frac{3}{7}$ L, 1 L, $\frac{6}{7}$ L

a. What is the most common amount of liquid?

b. Which measurements are not represented by the data on the line plot?

c. How many containers are there in all?

d. How many containers hold more than $\frac{4}{7}$ liters?

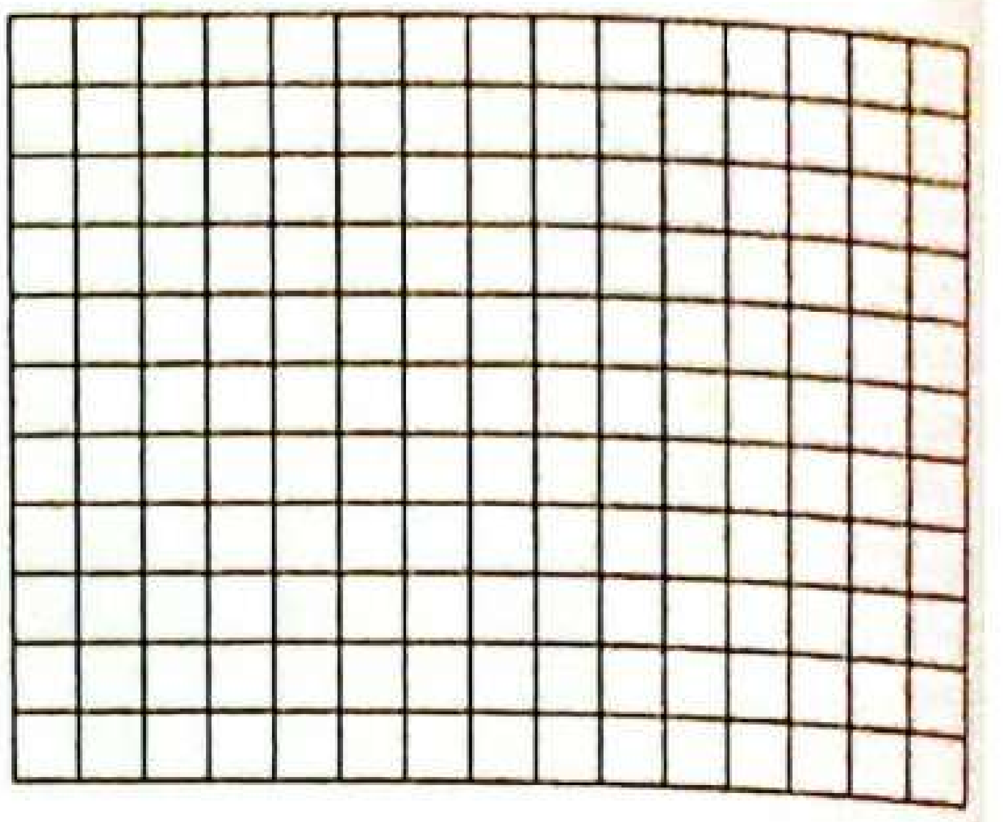
e. How many more containers hold $\frac{3}{7}$ liters than $\frac{1}{7}$ liters?

f. Write one statement about the data.

Second : Breaking the bar

7. **The following data show the internet usage for four friends. The data are given to the nearest $\frac{1}{4}$ of hour. Use the following table to complete the bar graph, then answer the questions.**

Name	Samer	Amira	Islam	Enas
Number of hours	$\frac{3}{4}$	$2\frac{1}{4}$	$1\frac{1}{2}$	2



a. Who uses the internet the most time?

b. Who uses the internet the least time?

c. What is the difference between Enas and Samer?

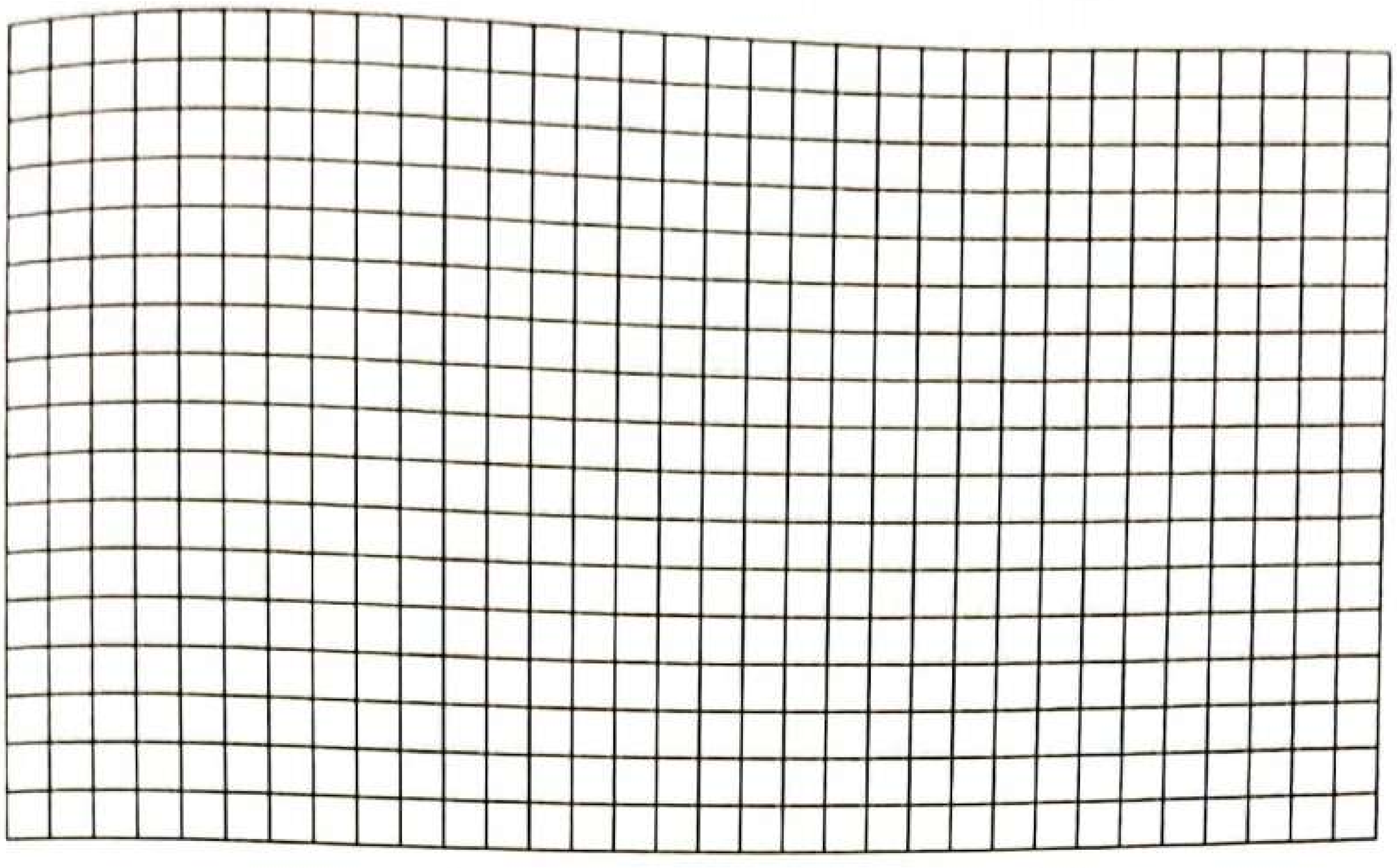
d. What is the total internet usage in all?

e. How many more hours did Amira use than Islam?

8. **Rolling , Rolling , Rolling Part 1.** Omar and Malek conducted an experiment. They wanted to see how far their friends could roll a heavy ball. They drew a starting line in the dirt and asked six friends to roll a 10 kilograms ball as far as they could from the starting line. They measured the distance in meters to the nearest $\frac{1}{4}$ meter and record their data in a table.

Student	Distance for 10 kg Ball (in m)
Rana	$\frac{3}{4}$ m
Salah	$1\frac{1}{2}$ m
Tahani	$1\frac{1}{4}$ m
Ziad	$2\frac{1}{4}$ m
Farouk	$1\frac{3}{4}$ m
Walid	$2\frac{1}{2}$ m

Create a bar graph that shows Omar and Malek's data. Remember to include all the elements of a bar graph.



Now, write two questions about the bar graph you created and then answer them.

Question 1 :

Question 2 :

- **Rolling, Rolling, Rolling Part 2.** Omar and Malek decided to see how far the same students could roll an 8-kilogram ball and compare the data they collect to the data for the 10-kilogram ball.

Student	Distance for 10 kg Ball (in m)	Distance for 8 kg Ball (in m)
Rana	$\frac{3}{4}$ m	$1\frac{1}{4}$ m
Salah	$1\frac{1}{2}$ m	2 m
Tahani	$1\frac{1}{4}$ m	2 m
Ziad	$2\frac{1}{4}$ m	$3\frac{1}{2}$ m
Farouk	$1\frac{3}{4}$ m	$2\frac{1}{2}$ m
Walid	$2\frac{1}{2}$ m	$3\frac{1}{4}$ m

a. Add this new data to your graph from Part 1, so that you can compare each student's two rolls.

When finished, answer the following questions about the double bar graph data.

b. Which students rolled the 8 kilograms ball exact $\frac{1}{2}$ a meter farther than they rolled the 10 kilograms ball?

c. Which student had the biggest difference between their 10 kilograms ball roll and their 8 kilograms ball roll?

d. What is the sum of Ziad and Farouk's 8 kilograms rolls?

e. Looking at the data, what could you infer would happen if the students rolled a 6 kilograms ball. Explain your reasoning.

f. Pick two students and find the total distance of both of their rolls (10 kilograms and 8 kilograms).

---

9. **Writing About Math.** Double bar graphs require you to compare two related sets of data. Read the titles of the graphs and think about the data you would collect for each.

- Height of students.
- Favorite subject in school.
- How many books you read each month.
- Number of different types of cars sold.
- Length of 5 objects in your desk.
- Hours slept each night.
- Temperatures in different cities.

a. Circle the titles that could be double bar graphs.

b. For the titles you circled, record the two categories you might use for the different bars.

---

10. Giovanni made a table to show the marks for his team, the Goldenrods, and the opposing team in the first three exams. What type of graph would be most appropriate for Giovanni to use to display these data? Explain.

Marks Scored in Each Exam			
Team	Exam 1	Exam 2	Exam 3
Goldenrods	$30\frac{1}{2}$	$31\frac{1}{4}$	$31\frac{1}{2}$
Opponents	$32\frac{1}{4}$	$30\frac{1}{2}$	$31\frac{1}{4}$

Represent these data by this type of graph, then answer the following questions.

a. Which team has got the highest score in Exam 3 ?

b. Which team has got the lowest score in Exam 1 ?

c. What is the difference between the highest and lowest score in Exam 2 ?

d. What is the sum of the highest and lowest score in Exam 3 ?

11. The following data shows the walking distance in a week by two friends Bassem and Amal. The data are given in kilometers. Represent these data by a double bar graph showing the week's data. Then use the graph to answer the following questions.

Days / Name	Sunday	Monday	Tuesday	Wednesday	Thursday
Bassem	$2\frac{1}{4}$	$1\frac{1}{2}$	$3\frac{3}{4}$	3	$3\frac{1}{2}$
Amal	$1\frac{3}{4}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{4}$	4

a. Which day Bassem walked the longest distance ?

b. Which day Amal walked the shortest distance ?

c. On which day did Bassem and Amal's total equals 4 kilometers ?

d. How many total kilometers did Amal walk in all ?

e. How many total kilometers did Bassem walk in all ?

f. On which day did Bassem walk twice as far as he did in Monday ?

Multiple Choice Questions

Choose the correct answer.

1. Which of the following can be represented by a line plot?
   - A. Our favorite movie.
   - B. Our favorite animal.
   - C. Our height.
   - D. Our favorite food.

2. Which of the following can not be represented by a line plot?
   - A. The number of our family members.
   - B. Distance between home and school.
   - C. Our shoe sizes.
   - D. Our favorite activity in our spare time.

3. Which of the following can be represented by a double bar graph?
   - A. Sleeping hours every night.
   - B. Max. and Min. temperature in different cities.
   - C. Favorite food.
   - D. Length of 5 things on your desk.

4. Which of the following can not be represented by a double bar graph?
   - A. The height of two types of plants through 5 weeks.
   - B. The number of boys and girls in each grade of a primary school.
   - C. Number of absent pupils in your class this week.
   - D. The score of the pupil's exam in Math and English.

5. The following table can be represented by ....

Subject	Arabic	English	Math	Science
Bassem	30	35	39	33
Mona	25	40	37	38

A. A line plot. B. A bar graph. C. A double bar graph.

6. The following data show the heights of 20 pupils in centimeters in class 4/A

110	111	109	108	100	101	103	105	103	104
102	100	103	105	110	104	106	100	109	103

What is the suitable method of representing this data?

A. A line plot. B. A bar graph. C. A double bar graph.

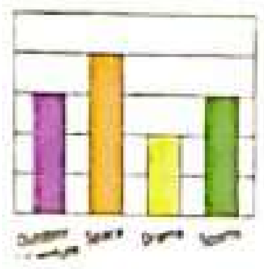
Lesson 3

11-4 Data About Us
11-5 Graphing the Class

Learn

There are many different of graphs and tables can be sorted into three categories :

Bar Graph

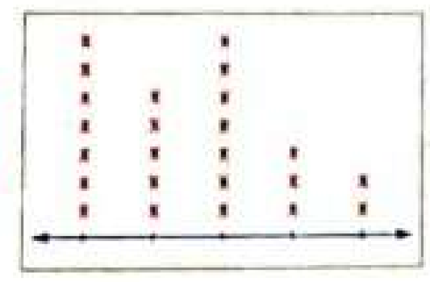


Bar graph is used to compare things between different groups or to track change over large periods of time with one group surveyed.

Examples of data can be represented by bar graph :

- Favorite animal or pet.
- Favorite color or sport.
- Favorite food or fruit.
- Favorite season.
- Favorite subject.
- Student marks.

Line Plot

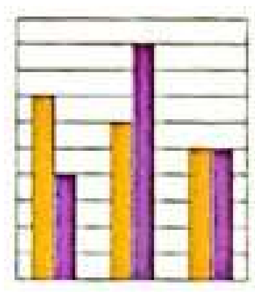


Line plot is used to show the frequency of data on a number line.

Examples of data can be represented by line plot :

- Date involving measurements such as : length of time, distance, height, or weight.
- Number of siblings.
- Number of pets.

Double Bar Graph



Double bar graph is used to display two sets of data on the same graph using two different colors to compare the two categories.

Examples of data can be represented by double bar graph :

- Favorite color between boys and girls.
- Favorite food between boys and girls.
- Students marks of two subjects.
- Highest and lowest temperature of some cities.
- Saved amounts during months between two persons.

The four main elements to graph the data :

1. Title.
2. Labels for each axis.
3. Scale with increments accurately marked.
4. A key if needed.

Notes for parents :

- Explain that the data affect the type of graph.

Example 1

Choose the suitable data graphing from the opposite table for each of the following situations. (**Hint**: Some data can be represented by more than one way).

Bar graph
Double bar graph
Line plot

a. Data about favorite car color for a group of 30 children.
b. Data about 4 friends marks in two different subjects.
c. Data about studying hours at home for 25 students.
d. Data about sales of 5 items in a company between two years.
e. Data about weight of water bottles to the nearest $\frac{1}{4}$ of liter for 35 bottles.
f. Data about student's marks in 5 subjects.

Solution

a. Bar graph.
b. Double bar graph.
c. Line plot or bar graph.
d. Double bar graph.
e. Line plot or bar graph.
f. Bar graph.

Example 2

Farida collected data about training time after school on a day for her friends to the nearest $\frac{1}{2}$ an hour as follows:

1	2	$\frac{1}{2}$	$2\frac{1}{2}$	1	2	3	1	$\frac{1}{2}$	2	$1\frac{1}{2}$
2	$1\frac{1}{2}$	2	1	$1\frac{1}{2}$	$\frac{1}{2}$	2	$2\frac{1}{2}$	2	1	$\frac{1}{2}$

Help Farida show the data in the table and then represent these data by a line plot.

Training time		
Time	Tally	Number
$\frac{1}{2}$	____	____
1	____	____
$1\frac{1}{2}$	____	____
2	____	____
$2\frac{1}{2}$	____	____
3	____	____

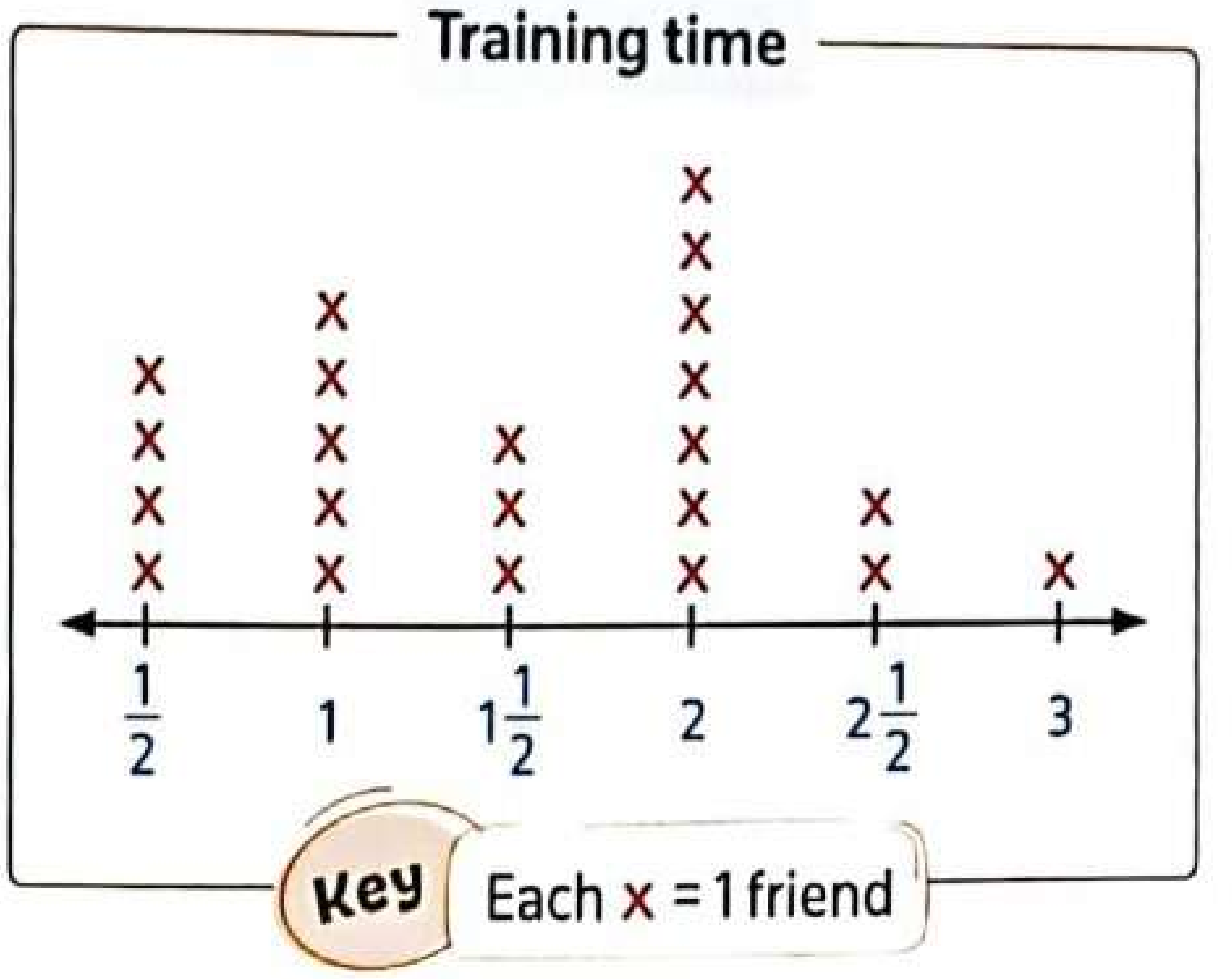
Notes for parents :

• Ask your child to select the most appropriate graph to display a set of data.

Solution

> **Remember**
> | = 1
> 𝍸 = 5

Training time		
Time	Tally	Number
$\frac{1}{2}$	||||	4
1	𝍸	5
$1\frac{1}{2}$	|||	3
2	𝍸||	7
$2\frac{1}{2}$	||	2
3	|	1



Example 3

Hany made this list of the shirt colors his friends were wearing.

Make a tally table and represent it by a bar graph, then answer the following questions :

Blue	Red	Blue	Green	Green	Green	Blue
Red	Blue	Blue	Red	Blue	Red	Red
Blue	Red	Blue	Blue	Blue	Red	

a. How many children were wearing blue shirts ?

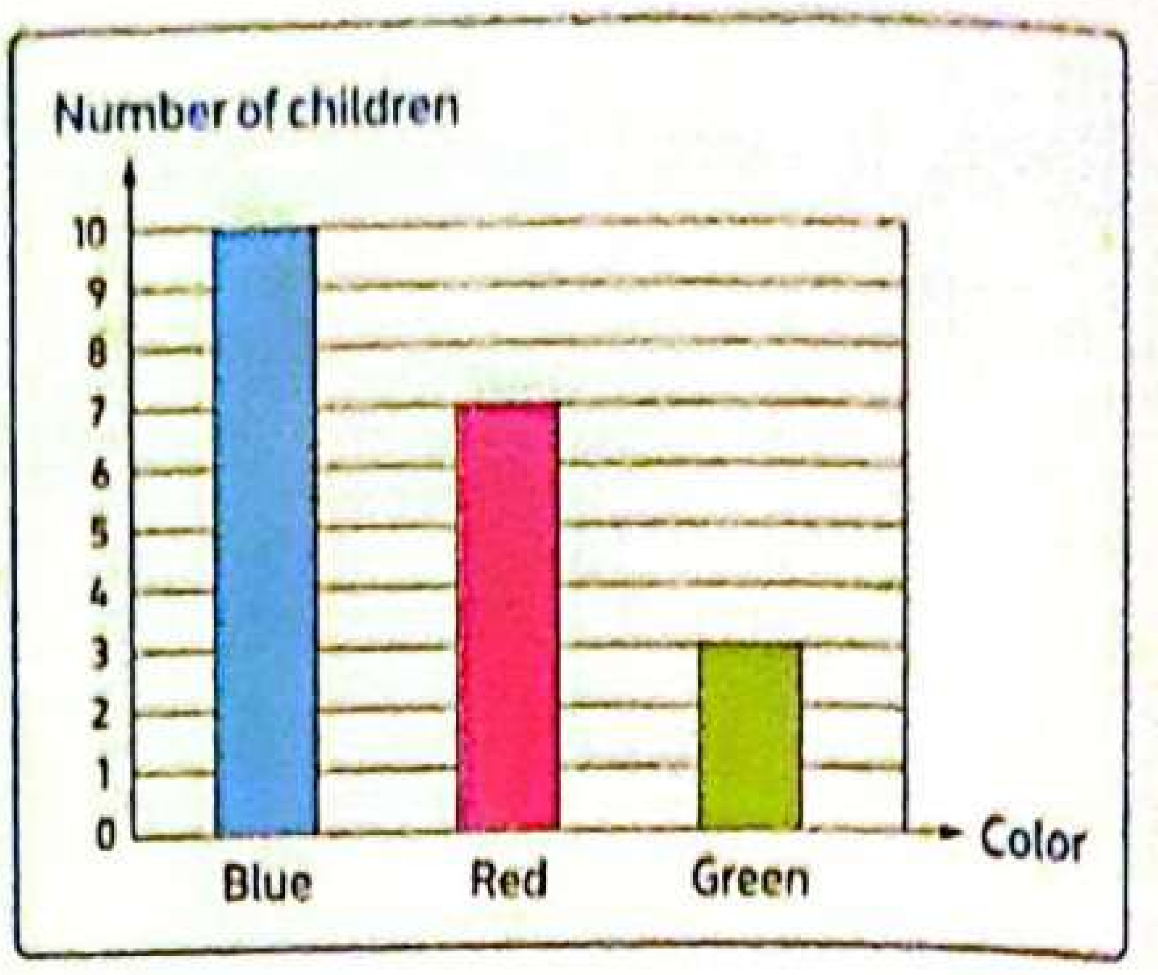
b. What was the color of the most shirts ?

c. List the shirt color data from the least to the greatest.

• Ask your child to use tally marks to count things at home, such as mugs, books and spoons. Ask him/her to show these data by a graph.

Solution

Color	Tally	Total
Blue	𝍸 𝍸	10
Red	𝍸𝍷𝍷	7
Green	𝍷𝍷𝍷	3



a. 10.

b. Blue.

c. Green , Red , Blue.

Example 4

The following data shows the votes of students favorite juice flavor among boys and girls. Complete the table finding the totals. Represent these data by a suitable graph.

Favorite Juice Flavor				
Flavor	Tally		Total	
	Boys	Girls	Boys	Girls
Orange	𝍸𝍷𝍷	𝍷𝍷𝍷𝍷	......	......
Apple	𝍸𝍷	𝍸𝍷𝍷𝍷𝍷	......	......
Strawberry	𝍷𝍷𝍷	𝍸 𝍸	......	......
Mango	𝍸𝍷𝍷𝍷𝍷	𝍸𝍷𝍷	......	......
Guava	𝍸𝍷𝍷𝍷	𝍷𝍷𝍷𝍷	......	......

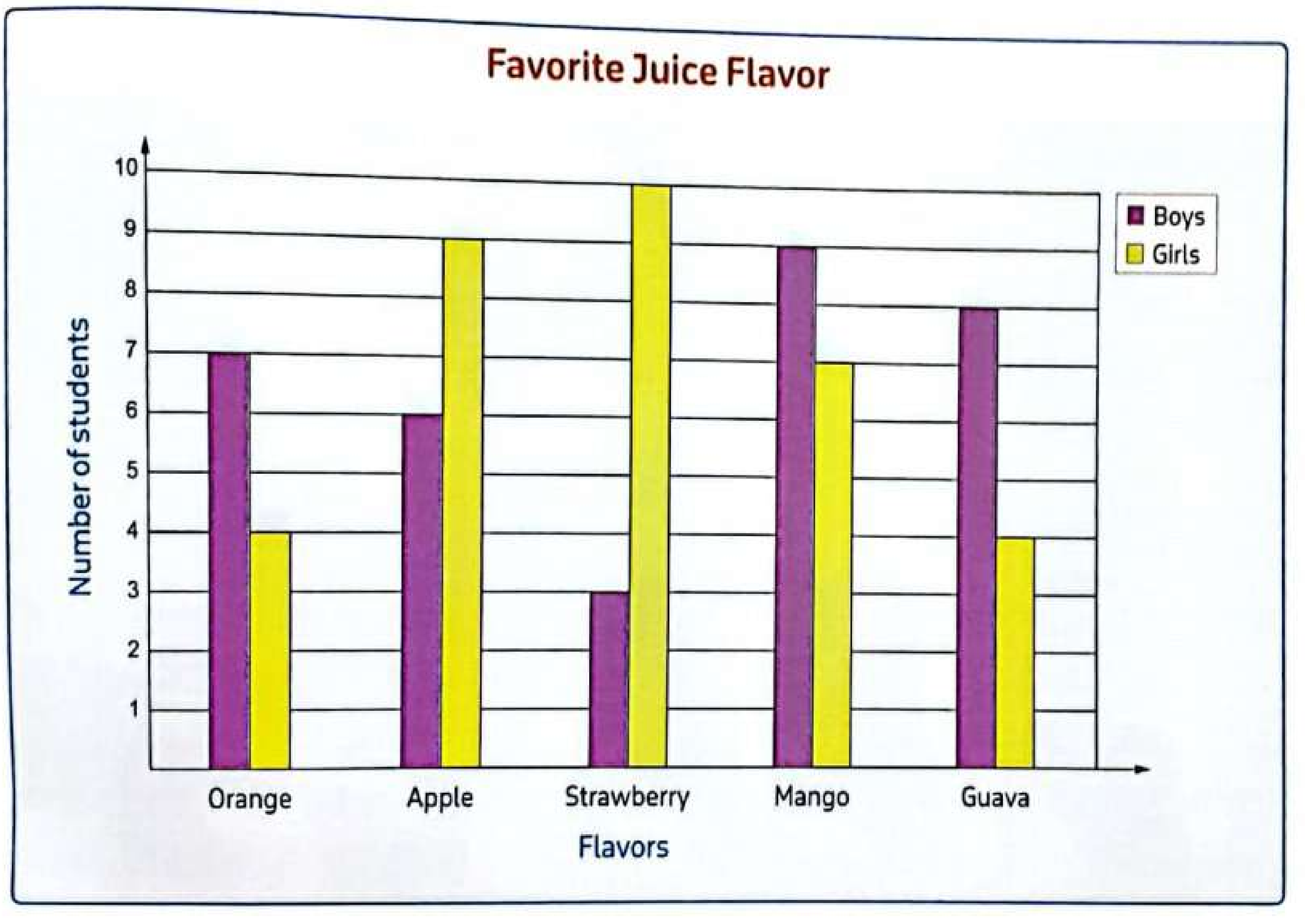
Notes for parents :

- Ask your child to use tally marks to count the girls and the boys in his/her family and represent his/her data by a suitable graph.

Solution

Favorite Juice Flavor				
Flavor	Tally		Total	
	Boys	Girls	Boys	Girls
Orange	𝍸 II	IIII	7	4
Apple	𝍸 I	𝍸 IIII	6	9
Strawberry	III	𝍸 𝍸	3	10
Mango	𝍸 IIII	𝍸 II	9	7
Guava	𝍸 III	IIII	8	4

The suitable graph to represent these data is the double bar graph.



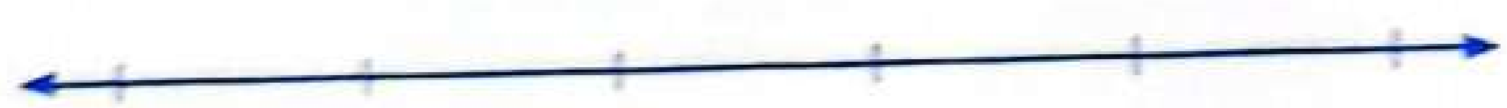
• Work with your child to collect and record data, then ask him/her about the suitable graph he/she can represent these data.

Check your understanding

Complete the following table to find the total.

Length of jumps		
Length	Tally	Total
$\frac{1}{3}$	卌	____
$\frac{2}{3}$	𝍷𝍷𝍷𝍷	____
1	卌 卌	____
$1\frac{1}{3}$	卌𝍷𝍷	____
$1\frac{2}{3}$	𝍷𝍷𝍷𝍷	____
2	𝍷𝍷𝍷	____

Represent the data of the table by a line plot.



Notes for parents :

- After your child represents the data in this page, ask him/her questions about this data.

Exercise 25

11-4 Data About Us
11-5 Graphing the Class

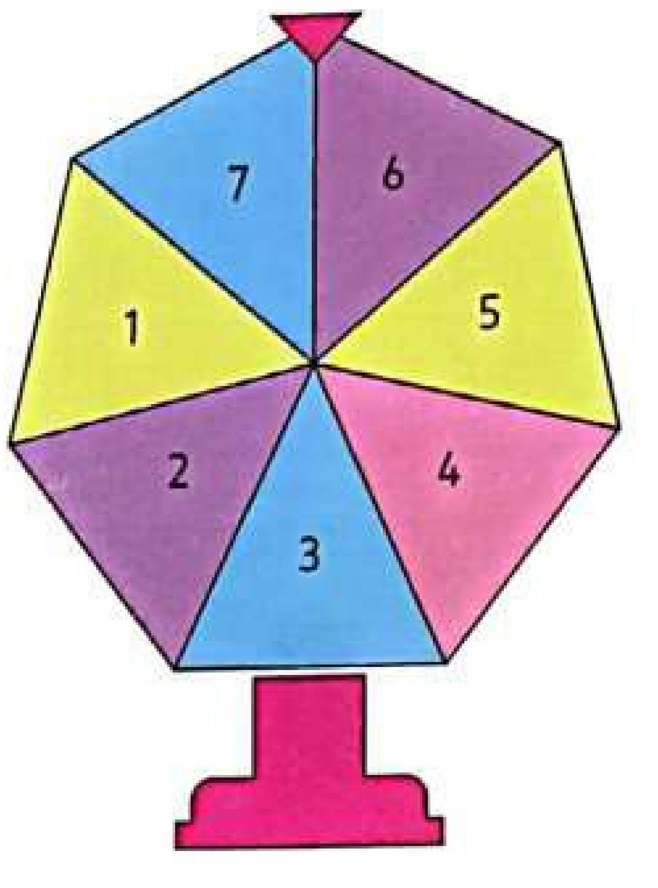
● REMEMBER ● UNDERSTAND ● APPLY ● PROBLEM SOLVING 📖 From the school book

1. "THE SUN ALWAYS SETS IN THE WEST"
Use a suitable graph that helps you to answer the question : Which letter appears the most in the previous sentence ?

2. The football coach scored the following numbers of goals in the last twenty matches.
3 , 0 , 1 , 5 , 4 , 3 , 2 , 6 , 4 , 2 , 3 , 3 , 0 , 7 , 1 , 1 , 2 , 3 , 4 , 3
Represent this data by using a suitable graph to help you answer the following question.
• Which number had the highest frequency ?

3. **A spinner is in the shape of a regular heptagon marked by the numbers 1 to 7.**
Samy spun the spinner 50 times and recorded his results in a table , as follows :

Score	Frequency
1	7
2	5
3	8
4	9
5	4
6	7
7	10



Represent this data by using a line plot. Then, answer the following question :
How many times did he score a prime number ?

4. 📖 **Plot It Out.** Look at the data and think about what scale you will use. How will you organize the fraction data ? Where will your number line begin and end ? Create a line plot for the data.

$1\frac{1}{2}$ km ; $2\frac{3}{4}$ km ; 3 km ; $2\frac{3}{4}$ km ; $2\frac{1}{2}$ km ; $2\frac{3}{4}$ km ;

$3\frac{3}{4}$ km ; 3 km ; $3\frac{1}{2}$ km ; $2\frac{1}{2}$ km ; $3\frac{1}{2}$ km ; 1 km

5. Represent the following data by a line plot.

The hours you spent sleeping	6	$6\frac{1}{2}$	7	$7\frac{1}{2}$	8	$8\frac{1}{2}$	9	$9\frac{1}{2}$	10
Frequency	0	2	4	4	7	8	7	6	3

- Analyze the data.
- Write four numerical sentences about the data after drawing the line plot.

---

6. Complete the table. Represent the following data by a suitable graph.

Number of Siblings		
Number	Tally	Total
0	卌 ||	
1	卌	
2	卌 |||	
3	||||	
4	|||	
5	||	
6	|	

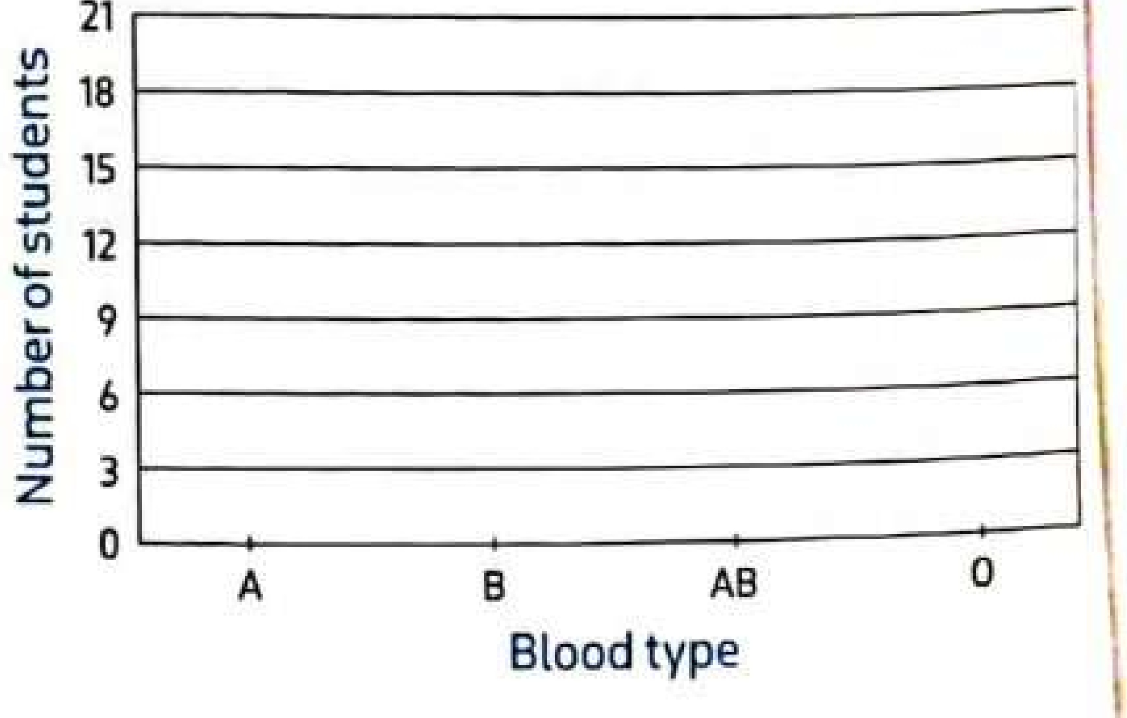
Hint : You can represent these data by more than one way.

7.

A	B	O	O	AB	O	A	O	B	A
O	B	A	O	O	A	AB	O	A	A
O	O	AB	B	A	O	B	A	B	O

The previous data shows the blood types of 30 primary school students. Complete the table, then represent this data by a bar graph.

Blood types		
Blood type	Tally	Number of students
A		
B		
AB		
O		



8. Complete the table. Represent the following data by a suitable graph.

How We Get to School		
Mode of Transportation	**Tally**	**Total**
Bus	𝍸 II	
Walk	𝍸 III	
Car	𝍸 𝍸	
Other	IIII	

9. Complete the following table. Represent the data by a suitable graph.

Our Favorite Food				
Food	**Tally Table**		**Total**	
	Girls	**Boys**	**Girls**	**Boys**
Chicken	𝍸 III	𝍸 II		
Meat	𝍸	𝍸 I		
Fish	IIII	𝍸		
Other	𝍸 II	𝍸 II		

10. Complete the following table. Represent the data by a suitable graph.

Our Favorite Colors				
Colors	**Tally Marks**		**Total**	
	Boys	**Girls**	**Boys**	**Girls**
Black	𝍸 I	IIII		
White	III	𝍸		
Red	IIII	𝍸 I		
Orange	𝍸	IIII		
Yellow	III	II		
Blue	𝍸 I	II		
Green	𝍸 II	I		
Purple	II	𝍸		
Pink	I	𝍸 III		

11. The following situations need to be represented.

Choose from the opposite table the suitable data graphing.

Hint : Some data can be represented by more than one way.

Bar graph
Double bar graph
Line plot

a. Data about number of siblings.

b. Favorite animal between boys and girls.

c. Favorite day of the week.

d. Data about days spent at the beach.

e. Data about toys sales during 4 months of 2 years.

f. The votes are : Math , Arabic , Math , Math , English , Science , Science , Math , Arabic , Math , English , English

g. The lengths are : $15\frac{1}{2}$, $15\frac{1}{4}$, 15 , 16 , $16\frac{1}{4}$, $15\frac{3}{4}$, $14\frac{3}{4}$, 16 , $16\frac{1}{2}$, 15 , 15 , $14\frac{1}{2}$, $16\frac{3}{4}$

h.

Favorite activity				
Activity	Reading	Drawing	Art	Sport
Number	85	55	70	100

i.

Sport / Students	Basketball	Ballet	Football	Tennis
Boys	5	2	10	6
Girls	7	7	3	6

j.

Length of pencil						
Measurement	$10\frac{1}{2}$	$11\frac{1}{2}$	$12\frac{1}{2}$	$13\frac{1}{2}$	$14\frac{1}{2}$	$15\frac{1}{2}$
Number	3	5	2	1	6	7

Multiple Choice Questions

Choose the correct answer.

1. Which type of graph is suitable for this data ?

Name	Ahmed	Nora	Sally	Ola
Age	13	17	15	10

A. Double bar graph. B. Line plot.

C. Bar graph.

2. Which type of graph is suitable for this data ?

Subject	Math	English	Arabic	Science	Art
Hany	20	19	15	18	17
Mona	17	20	19	20	15

A. Double bar graph. B. Line plot. C. Bar graph.

3. Which type of graph is suitable for this data ?

Number of hours	0	1	2	3	4	5
Number of students	2	4	10	11	3	1

A. Double bar graph. B. Line plot. C. Pictograph.

4. Which type of graph is suitable for this data ?

A. Double bar graph.

B. Line plot.

C. Bar graph.

Evaluation	Tally	Total
Excellent	||	2
V.good	卌 |||	8
Good	卌 |	6
Pass	||||	4

5. Which type of graph is suitable for this data ?

A. Double bar graph.

B. Line plot.

C. Bar graph.

1	3	2	5	1	4
3	2	4	1	3	1
2	1	3	4	1	5

6. From the opposite tally table the value of X is ________

A. 6

B. 7

C. 8

D. 9

Name	Tally	Number
Amgad	||||	4
Ola	𝍸	5
Nora	𝍸 𝍸	10
Alaa		X
Noha	||	2
Total		30

---

7. From the opposite tally table the value of X is ________

A. 𝍸 |

B. ||||

C. 𝍸

D. |||

Subject	Tally	Number
Math		X
English	𝍸 𝍸 |||	13
Arabic	𝍸 𝍸 𝍸	15
Science	𝍸 𝍸 |	11
Music	𝍸 |	6
Total		50

---

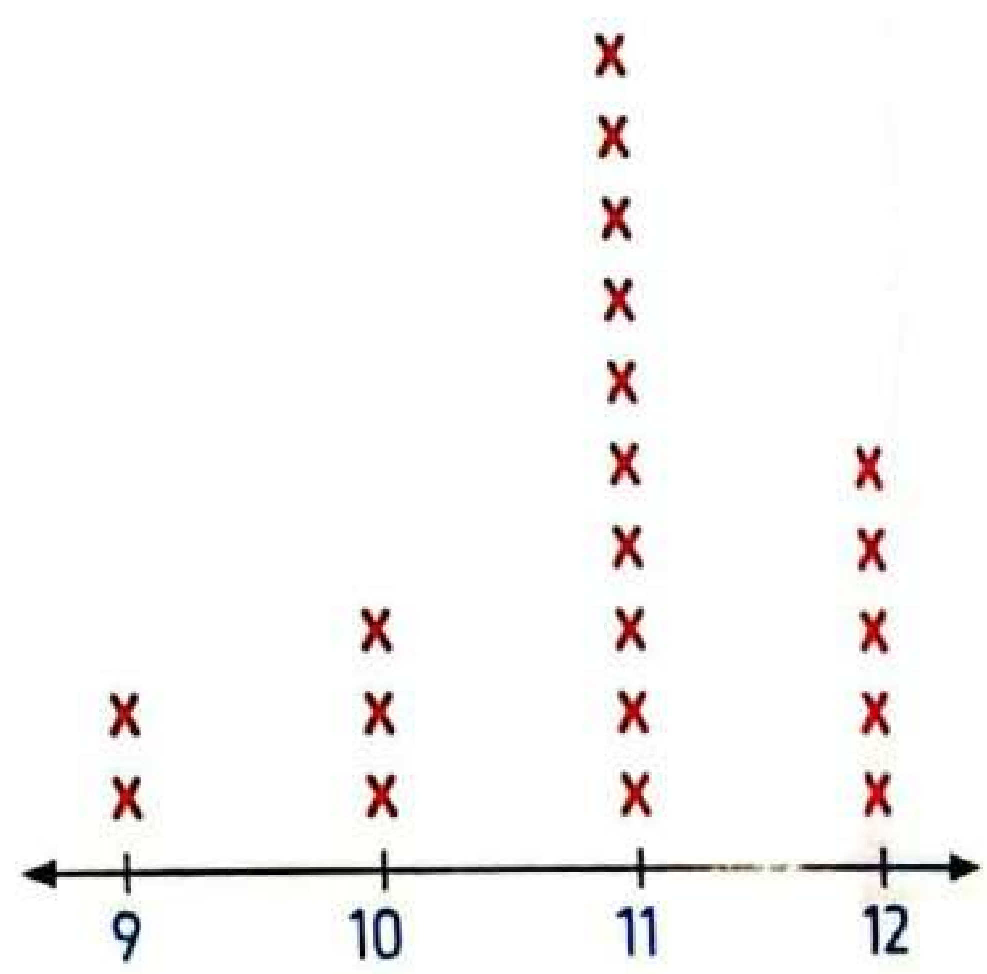
8. In the opposite line plot, if it represents the ages of 40 students in grade 4, then each X stands for ________ students.

A. one

B. two

C. three

D. four



Unit Eleven Assessments

Model 1

1. Choose the correct answer.

a. Which of the following can be represented by a line plot ?

A. Our favorite sport B. Our favorite color C. Our weight D. Our favorite food

b. 卌 || = ______

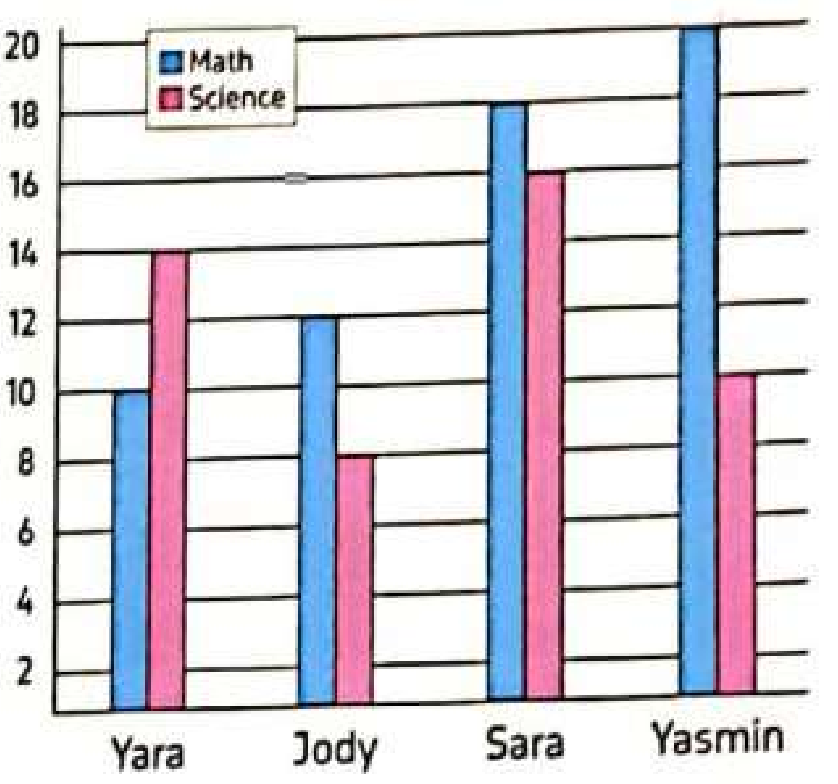
A. 5 B. 6 C. 7 D. 8

c. Which of the following by a double bar line ?

A. Favorite animal B. Marks of friends in Math

C. Marks of friends in Math and Arabic D. Our height

2. The opposite graph shows the marks of four students in Math and Science tests.



Complete.

a. The student got the highest mark in Math is ______

b. The difference between the Math mark and Science mark of Yasmin is ______

c. The student got the lowest mark in Science is ______

3. Use the following data to make a line plot.

$5\frac{1}{2}$	$3\frac{1}{2}$	$6\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$	$4\frac{1}{2}$	$6\frac{1}{2}$	$5\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$
4	3	5	$5\frac{1}{2}$	$3\frac{1}{2}$	4	6	6	4	5

4. The following data shows the number of study hours in a week by Eslam and Mina. Represent this data by a double bar graph.

Days / Name	Sat.	Sun.	Mon.	Tue.	Wed.	Thu.	Fri.
Eslam	3	4	$5\frac{1}{2}$	5	3	5	$3\frac{1}{2}$
Mina	$3\frac{1}{2}$	3	5	6	$4\frac{1}{2}$	$6\frac{1}{2}$	2

Model 2

1. Choose the correct answer.

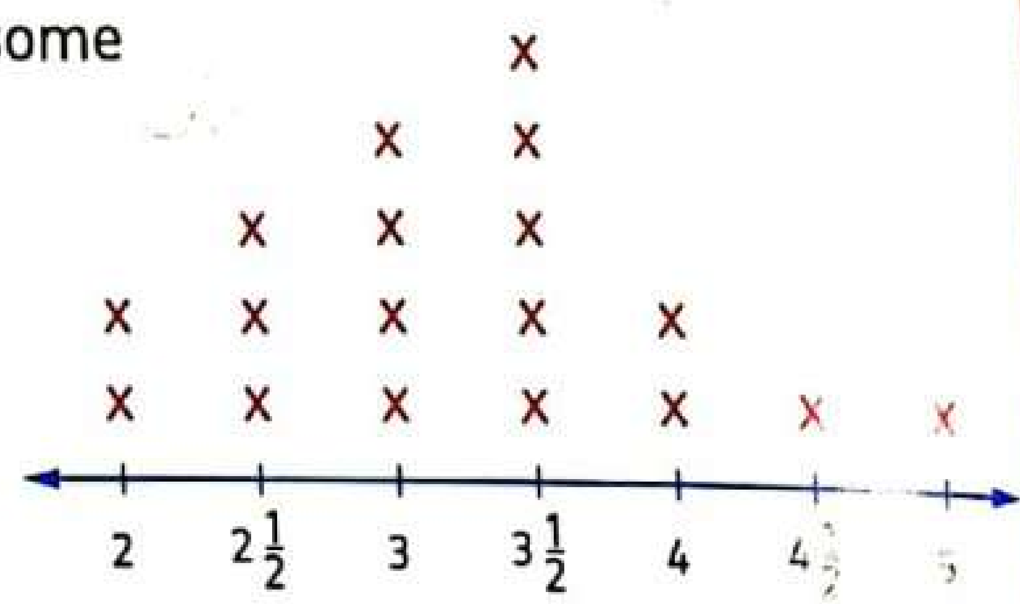
a. To represent the number of walking hours for Ahmed and Hassan in one week you can use ______

A. line plot B. pictograph C. double bar graph D. bar graph

b. Maged collected some data about the favorite pet of his friends. Which kind of representing data is the best?

A. line plot B. double bar graph C. bar graph D. pictograph

c. The opposite line plot represent the lengths of some trees by meter. Which length that represent greatest number of tree?



A. $2\frac{1}{2}$ B. 3

C. $3\frac{1}{2}$ D. 4

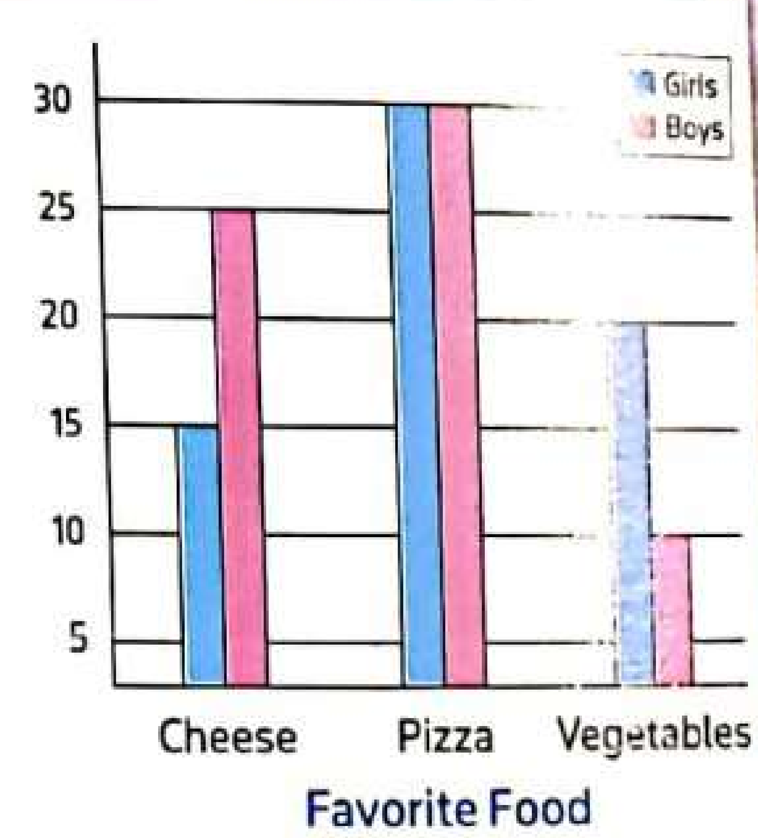
2. The opposite graph represent the favorite food to boys and girls in grade four.

Complete.

a. The number of girls in grade four is ______

b. The number of boys that like cheese is ______

c. The type of food that liked by the same number of boys and girls is ______



3. The opposite tally table represent the favorite color of some student.

a. The number of students that prefer yellow is ______

b. The number of students that prefer green is ______

c. The color that has most favorite is ______

d. The difference between the number of students which favorite green and black is ______

The favorite color	
Color	Tally
Red	𝍸 𝍸 ||
Yellow	𝍸 𝍸 𝍸 |||
Black	||||
White	𝍸 𝍸 |
Green	𝍸 ||||

4. The following data shows the walking distance of four friends in two different days to nearest $\frac{1}{4}$ kilometers.

Day \ Name	Martha	Angy	Roqia	Lores	Neven
First day	$2\frac{1}{2}$	1	$2\frac{3}{4}$	2	$2\frac{3}{4}$
Second day	$2\frac{1}{4}$	$1\frac{1}{2}$	$2\frac{1}{4}$	$2\frac{1}{4}$	3

Represent this data by using a double bar graph , then answer the following questions.

a. Who walked the same distance as Martha in the second day ?

b. What is the difference between the tallest distance and the shortest distance in the first day ?

EL-MOASSER

Mathematics

By a group of supervisors

معاك
Ma3ak App

FREE PART 1 CUMULATIVE & FINAL ASSESSMENTS

SECOND TERM

4th PRIMARY

2022

Cumulative Assessments on UNIT 7

Cumulative Assessment 1 On lesson 1 unit 7

1. Find the quotient and the remainder.

a. 29 ÷ 5 = ________ R ________

b. 62 ÷ 8 = ________ R ________

c. 58 ÷ 6 = ________ R ________

d. 82 ÷ 9 = ________ R ________

e. 45 ÷ 7 = ________ R ________

f. 36 ÷ 4 = ________ R ________

g. 72 ÷ 6 = ________ R ________

h. 96 ÷ 4 = ________ R ________

2. Complete.

a. 30 ÷ 6 = ________

b. 35 ÷ 6 = ________ R ________

c. The remainder from 78 ÷ 8 is ________

d. The quotient of 22 ÷ 6 is ________

e. 38 ÷ 6 = ________ R 2

3. Hany has 64 pounds , he wants to give the money to his three sons , how can he share the money equally ? What is the remainder ?

____

4. Choose the correct answer.

a. 18 ÷ 5 = ________

A. 3 R 0 B. 5 R 3 C. 3 R 3 D. 5 R 0

b. 25 ÷ 4 = 6 R ________

A. 1 B. 2 C. 3 D. 4

c. 30 ÷ ________ = 7 R 2

A. 6 B. 5 C. 4 D. 7

d. 24 ÷ 3 = ________

A. 8 B. 9 C. 7 R 1 D. 6 R 2

e. ________ ÷ 3 = 8 R 2

A. 24 B. 25 C. 26 D. 27

Cumulative Assessment 2 Till lesson 2 unit 7

1. Complete.

a. 800 ÷ 4 = ______

b. 9,000 ÷ 9 = ______

c. 42,000 ÷ 7 = ______

d. 86 ÷ 7 = ______ R ______

e. 24 tens ÷ 8 = ______

f. 4 hundreds ÷ 4 = ______

g. 1,500 ÷ 3 = ______

h. 6 ones ÷ 3 = ______

2. Choose the correct answer.

a. 480 ÷ ______ = 80

A. 6 B. 60 C. 7 D. 8

b. 30,000 ÷ 5 = ______

A. 600 B. 60 C. 6 D. 6,000

c. ______ hundreds ÷ 5 = 20 tens

A. 1 B. 10 C. 100 D. 1000

d. ______ hundreds ÷ 4 tens = 5 tens

A. 200 B. 20 C. 2 D. 2,000

3. There are 320 tourists want to be seated in 8 buses. How many tourists are there in each bus?

____

4. Use the pattern and place value to find the quotient.

a.
8 ÷ 4 = ______
80 ÷ 4 = ______
800 ÷ 4 = ______
8,000 ÷ 4 = ______

b.
15 ÷ 5 = ______
150 ÷ 5 = ______
1,500 ÷ 5 = ______
15,000 ÷ 5 = ______

c.
24 ÷ 6 = ______
240 ÷ 6 = ______
2,400 ÷ 6 = ______
24,000 ÷ 6 = ______

d.
40 ÷ 8 = ______
400 ÷ 8 = ______
4,000 ÷ 8 = ______
40,000 ÷ 8 = ______

Cumulative Assessment 3 — Till lesson 3 unit 7

1. Use the area model to solve each of the following.

a. $84 \div 3$

b. $75 \div 5$

c. $74 \div 4$

d. $216 \div 6$

2. Solve :

a. $52 \div 2 =$ ______

b. $455 \div 4 =$ ______

c. $3{,}200 \div 8 =$ ______

d. $393 \div 3 =$ ______

3. Choose the correct answer.

a. $95 \div 6 =$ ______

A. 15 R 5
B. 15 R 0
C. 5 R 0
D. 16 R 0

b. 21 hundreds $\div 7 =$ ______

A. 3
B. 300
C. 30
D. 3000

c. Which choice best completes the area model to find $148 \div 6$?

6	?	$6 \times 4 = 24$
		4 R4

A. $6 \times 2 = 12$
B. $20 + 4 + 2 = 26$
C. $20 + 4 = 24$
D. $6 \times 20 = 120$

d. $147 \div 7 =$ ______

A. 22
B. 21
C. 24
D. 17

Cumulative Assessment 4 Till lesson 4 unit 7

1. **Divide using partial quotient algorithm.**

a. $89 \div 3$

b. $628 \div 4$

c. $2{,}374 \div 6$

2. **Divide using standard division algorithm.**

a. $835 \div 5$

b. $4{,}258 \div 7$

c. $6{,}660 \div 9$

3. **Complete.**

a. ______ $\div 3 = 54$

b. $1{,}342 \div 8 =$ ______ R ______

c. $736 \div 4 =$ ______

d. $0 \div 125 =$ ______

e. ______ $\div 3 = 500$

f. $92 \div 10 =$ ______ R ______

4. **Put (✓) to the correct answer and (X) to the incorrect answer.**

a. $874 \div 3$ is closer to 400. ( )

b. $183 \div 5$ is closer to 40. ( )

c. 60 tens $\div 6 = 1$ hundred. ( )

d. The Remainder of $26 \div 3$ is zero. ( )

e. $2{,}700 \div 7 = 3{,}000$. ( )

c. $1{,}384 \div 6 = 23$ R 4. ( )

Cumulative Assessment 5 Till lesson 5 unit 7

1. Choose the correct answer.

a. If $73 \times 8 = 584$, then $584 \div 8 =$ ....

A. 78 B. 73 C. 83 D. 87

b. In the problem $3{,}467 \div 5$, the quotient is between .... and ....

A. 400 , 500 B. 300 , 400 C. 600 , 800 D. 1,000 , 2,000

c. $48 \div 7 = 6$ and R ....

A. 6 B. 7 C. 5 D. 4

d. $4{,}120 \div 4 =$ ....

A. 1,300 B. 1,003 C. 1,030 D. 103

e. $9{,}342 \div 3$ is closer to ....

A. 2,000 B. 4,000 C. 3,000 D. 5,000

2. Complete.

a. The division problem for $281 \times 6 = 1{,}686$ is ....

b. $922 \div 3 =$ .... R ....

c. 25 hundreds $\div 5 =$ .... tens

d. $3{,}264 \div 3 =$ ....

e. If $641 \times 7 = 4{,}487$, then $4{,}487 \div 7 =$ ....

f. In the problem $1{,}866 \div 6$, the quotient is between .... and ....

3. Amal has 358 L.E. She divided the money between her 2 children , what is the share of each one ?

....

4. Write the division problem that matches the multiplication problem.

a. $53 \times 6 = 318$

☐ ÷ ☐ = ☐

b. $42 \times 7 =$ ☐

☐ ÷ ☐ = ☐

Cumulative Assessments on UNIT 8

Cumulative Assessment 6 Till lesson 1 unit 8

1. Put (✓) to the correct answer and (✗) to the incorrect answer.

a. $2,352 \div 5 = 47$ R 2 ( )

b. The quotient of $4\overline{)283}$ is 70 R 3 ( )

c. $7,000 - 3,499 = 3,501$ ( )

d. $62 \times 18 = 1,116$ ( )

e. $1,432 + 6,268 = 7,700$ ( )

2. Choose the correct answer.

a. $80,000 - 55,555 =$ ....

A. 24,445 B. 24,454 C. 25,444 D. 24,444

b. $34,208 + 17,643 =$ ....

A. 51,581 B. 51,185 C. 51,851 D. 51,518

c. 28 tens $\div 4 =$ ....

A. 7 B. 7,000 C. 7 hundreds D. 7 tens

d. $57 \div 8 =$ .... R 1

A. 5 B. 6 C. 7 D. 8

e. $180 \div 3 =$ .... tens

A. 60 B. 6 C. 30 D. 3

3. Complete.

a. $5,264 \div 6 =$ ....

b. $5 \times 472 =$ ....

c. $39 \times 18 =$ ....

d. $647,289 - 493,522 =$ ....

e. $324 \div 1 =$ ....

f. 10 hundreds $\div$ 10 tens = ...

g. $1,250 \div 5 =$ ....

h. $175,316 + 509,772 =$ ....

4. Write (<, > or =).

a. $1,736 \div 4$ ◯ $1,736 \div 7$

b. $738 \div 3$ ◯ 216

c. $325 \div 1$ ◯ $3,251 \div 1$

d. 48 ten $\div 6$ ◯ 800

Cumulative Assessment 7 Till lesson 2 unit 8

1. Find the value of each of the following.

a. $6 + 3 \times 4 - 5 =$ ....

b. $8 + (12 - 5) \times 3 =$ ....

c. $80 \div 8 - 7 =$ ....

d. $3,602 \div 4 =$ ....

e. $3 + 9 \div 3 =$ ....

f. $4 \times 6 \div 8 + 7 =$ ....

2. Complete.

a. $36 - (4 + 2) \times 5 =$ ....

b. $(30 - 6) \div 3 =$ ....

c. $3 + 15 \div 3 + 5 =$ ....

d. $13 + (36 \div 4) =$ ....

e. $10 \times 3 + 15 \div 5 =$ ....

f. $3 \times 6 - (2 + 4) \div 2 =$ ....

3. Choose the correct answer.

a. $30 \div 6 + 9 - 4 =$ ....

A. 15 B. 12 C. 10 D. 9

b. $4 + 2 \times (10 - 4) =$ ....

A. 16 B. 12 C. 4 D. 8

c. $51 + 17 + 69 + 63 =$ ....

A. 180 B. 200 C. 190 D. 220

d. $3 \times 9 - (10 - 3) \times 2 =$ ....

A. 27 B. 30 C. 15 D. 13

e. $30 \div 6 + 4 - 2 \times 3 =$ ....

A. 3 B. 6 C. 9 D. 40

f. Which is the first step in evaluating $18 - 15 + 3 \times 8 - 2$?

A. $18 - 15$ B. 3×8 C. $15 + 3$ D. $8 - 2$

4. A group of 330 tourists wants to travel to Luxor, 154 tourists will take the train, the rest will take microbuses, each microbus holds 8 seats.
How many microbuses will be needed?

....

Cumulative Assessments on UNIT 9

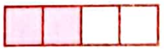
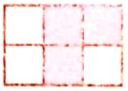
Cumulative Assessment 8 Till lesson 1 unit 9

1. Choose the correct answer.

a. $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}=$ ....

A. $\frac{2}{7}$ B. $\frac{3}{7}$ C. $\frac{4}{7}$ D. $\frac{5}{7}$

b. The model which represents $\frac{3}{4}$ is ....

A. B.  C.  D.

c. $4+5\times 2=$ ....

A. 14 B. 18 C. 20 D. 24

d. $1=$ ....

A. $\frac{5}{7}$ B. $\frac{7}{7}$ C. $\frac{1}{2}$ D. $\frac{1}{10}$

2. Put (✓) to the correct statement and (X) to the incorrect statement.

a. Two fifth $=\frac{2}{5}+\frac{2}{5}$ ( )

b. $31\div 5=6\text{ R }2$ ( )

c. $(3+4)\times 3=21$ ( )

d. $\frac{5}{9}=\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}$ ( )

3. Decompose the following proper fractions in two ways.

	First way	Second way
a. $\frac{3}{4}$	$\frac{3}{4}=$	$\frac{3}{4}=$ ....
b. $\frac{4}{5}$	$\frac{4}{5}=$	$\frac{4}{5}=$ ....

4. There are 288 tourists divided into equal groups. If each group has 8 tourists, how many groups will there be?

....

Cumulative Assessment 9 Till lesson 2 unit 9

1. Choose the correct answer.

a. Which of the following is a mixed number? ....

A. $\frac{3}{5}$ B. $\frac{4}{3}$ C. $3\frac{1}{2}$ D. $\frac{1}{4}$

b. $7\frac{1}{5} =$ ....

A. $\frac{36}{5}$ B. $\frac{35}{3}$ C. $\frac{13}{5}$ D. $\frac{35}{7}$

c. $34 \div 7 =$ ....

A. 4 B. 4 R 5 C. 4 R 6 D. 5 R 1

d. Which of the following has the same value as $\frac{5}{7}$? ....

A. $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}$

B. $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$

C. $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}$

D. $\frac{1}{7}+\frac{2}{7}+\frac{3}{7}+\frac{4}{7}+\frac{5}{7}$

e. $5{,}600 \div 7 =$ ....

A. 800 B. 80 C. 8,000 D. 808

f. If $96 \times 7 = 672$, then $672 \div 7 =$ ....

A. 960 B. 69 C. 906 D. 96

2. Write each mixed number as an improper fraction.

a. $5\frac{7}{8}$ b. $3\frac{2}{7}$ c. $2\frac{5}{9}$

3. Write each improper fraction as a mixed number.

a. $\frac{7}{3}$ b. $\frac{18}{5}$ c. $\frac{27}{4}$

4. Match.

a.	$\frac{2}{5}+\frac{1}{5}$	1.	$\frac{5}{5}$
b.	$2\frac{1}{5}$	2.	0
c.	$\frac{9}{9}$	3.	$\frac{3}{5}$
d.	$(7+1) \div 8 - 1$	4.	$\frac{11}{5}$

Cumulative Assessment 10 Till lesson 3 unit 9

1. Solve each of the following. You may draw models to help.

a. $4\frac{2}{5}+3\frac{3}{5}$

b. $4\frac{4}{7}-2\frac{2}{7}$

c. $4-2\frac{1}{4}$

d. $1+2+\frac{3}{8}+\frac{4}{8}+\frac{3}{8}$

e. $1-\frac{2}{9}-\frac{4}{9}$

f. $\frac{4}{5}+2\frac{1}{5}$

2. Complete.

a. $7\frac{5}{7}-$ ______ $=3\frac{1}{7}$

b. ______ $-4\frac{1}{3}=3\frac{2}{3}$

c. $8\frac{5}{6}+$ ______ $=9$

d. $1=\frac{}{7}$

e. $\frac{8}{}=2$

f. $4\frac{2}{3}=\frac{}{3}$

3. a. Find the quotient.

1. $6.400 \div 8$
2. $3.168 \div 6$

b. Solve the problem. show your work.

1. $73-50+15 \div 5$
2. $24+(8-5)\times 6$

4. Petra has $5\frac{3}{4}$ cakes, she gave $3\frac{1}{4}$ to her brother. How many cakes left does she has?

____

5. Put (✓) to the correct statement and (X) to the incorrect statement.

a. $25+25+25-14=25\times 25\times 25-14$ ( )

b. $4-\frac{1}{6}=3\frac{5}{6}$ ( )

c. $\frac{8}{3}=2\frac{2}{3}$ ( )

d. $\frac{5}{9}=\frac{1}{9}+\frac{1}{9}+\frac{1}{9}+\frac{1}{9}$ ( )

e. $127\div 6=21\text{ R }1$ ( )

f. $320\div 1=40\times 8$ ( )

Cumulative Assessment 11 Till lesson 4 unit 9

1. Compare. Write (> , < or =).

a. $\frac{3}{7}$ ◯ $\frac{3}{8}$

b. $\frac{5}{8}$ ◯ $\frac{7}{8}$

c. $\frac{7}{9}$ ◯ $\frac{1}{9}$

d. $\frac{5}{7}$ ◯ $\frac{3}{7}$

e. $\frac{4}{11}$ ◯ $\frac{4}{7}$

f. $\frac{2}{5}$ ◯ $\frac{1}{5}$

g. $\frac{2}{9}$ ◯ $\frac{2}{5}$

h. $\frac{2}{3}$ ◯ 1

2. Choose the correct answer.

a. $20 - 5 \times 3 =$ ______

A. 45 B. 10 C. 5 D. 25

b. $\frac{3}{8} >$ ______

A. $\frac{5}{8}$ B. $\frac{3}{7}$ C. $\frac{3}{9}$ D. $\frac{7}{8}$

c. $3\frac{1}{4} =$ ______ (as an improper fraction)

A. $\frac{13}{3}$ B. $\frac{13}{4}$ C. $\frac{12}{4}$ D. $\frac{8}{4}$

d. ______ $< \frac{5}{9}$

A. $\frac{5}{8}$ B. $\frac{5}{7}$ C. $\frac{6}{9}$ D. $\frac{5}{10}$

e. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} =$ ______

A. $\frac{3}{5}$ B. $\frac{3}{15}$ C. $\frac{1}{15}$ D. $\frac{3}{25}$

3. a. Order the following fractions in an ascending order.

$\frac{7}{10}, \frac{3}{10}, \frac{1}{10}, \frac{9}{10}, \frac{6}{10}$

b. Order the following fractions in a descending order.

$\frac{11}{7}, \frac{11}{3}, \frac{11}{5}, \frac{11}{8}, \frac{11}{4}$

4. Solve the problems.

a. 17×32

b. $7.485 + 2.721$

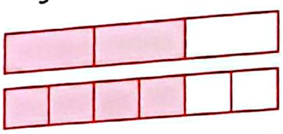
c. $\frac{3}{9} + \frac{6}{9}$

d. $281 \div 3$

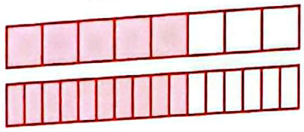
Cumulative Assessment 12 Till lesson 5 unit 9

1. Write the missing numerator or denominator.

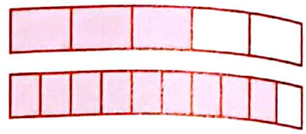
a. $\frac{2}{3} = \frac{\square}{6}$



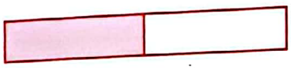
b. $\frac{5}{8} = \frac{10}{\square}$

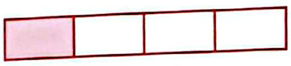


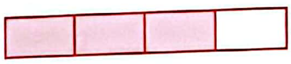
c. $\frac{3}{5} = \frac{\square}{15}$

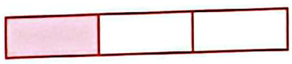


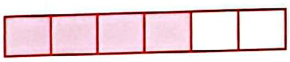
2. Write each fraction which represent the colored part, then match the equivalent fraction.

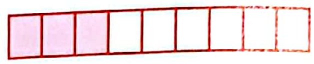
a. $\frac{\quad}{\quad}$ 

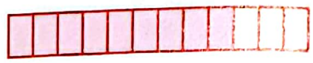
b. $\frac{\quad}{\quad}$ 

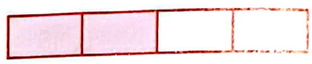
c. $\frac{\quad}{\quad}$ 

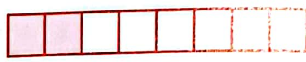
d. $\frac{\quad}{\quad}$ 

e. $\frac{\quad}{\quad}$ 

1. $\frac{\quad}{\quad}$ 

2. $\frac{\quad}{\quad}$ 

3. $\frac{\quad}{\quad}$ 

4. $\frac{\quad}{\quad}$ 

5. $\frac{\quad}{\quad}$

3. Choose the correct answer.

a. $7 \times 8 + 1 \times 5 =$ ....

A. 56 B. 60 C. 61 D. 285

b. $\frac{3}{__} = 1$

A. 1 B. 2 C. 3 D. 10

c. $\frac{19}{4} =$ .... (as a mixed number)

A. $4\frac{3}{4}$ B. $4\frac{1}{4}$ C. $5\frac{1}{4}$ D. $3\frac{3}{4}$

d. $3 + \frac{2}{7} + 5 + \frac{2}{7} =$ ....

A. $8\frac{2}{7}$ B. $8\frac{2}{14}$ C. $8\frac{4}{7}$ D. $8\frac{5}{7}$

4. Sara ate $1\frac{1}{3}$ of the chocolate cake and her brother Adel ate $\frac{4}{3}$ of cake of the same size.
Draw and color a model to each one of them.
then show who ate more of cake Sara or Adel ?

Cumulative Assessment 13 Till lesson 6 unit 9

1. Write (< , > or =). (using benchmark fractions)

a. $\frac{7}{8}$ ◯ $\frac{1}{2}$

b. $\frac{3}{4}$ ◯ 1

c. $\frac{3}{5}$ ◯ $\frac{3}{9}$

d. $1\frac{1}{2}$ ◯ 1

e. $\frac{5}{6}$ ◯ $\frac{1}{8}$

f. $\frac{5}{10}$ ◯ $\frac{7}{12}$

2. Find the result of each of the following.

a. $455 \div 4$

b. $7{,}848 - 298$

c. $25 + 4 \times 2$

d. $5 - 2\frac{3}{4}$

e. $7\frac{2}{7} + \frac{4}{7}$

f. 81×17

3. Write weather the fraction is closest to 0 , $\frac{1}{2}$ or 1 (use the number line.)

a. $\frac{3}{10}$

b. $\frac{9}{10}$

c. $\frac{1}{10}$

d. $\frac{6}{10}$

4. Use benchmark fractions 0 , $\frac{1}{2}$ and 1 to order each group of fractions.

a. $\frac{1}{7}, \frac{8}{8}, \frac{5}{6}$ (from the least to the greatest)

b. $\frac{5}{6}, \frac{1}{9}, \frac{7}{7}, \frac{5}{10}$ (from the greatest to the least)

5. Put (✓) to the correct statement and (✗) to the incorrect statement.

a. $\frac{6}{10} > \frac{7}{8}$ ( )

b. $\frac{3}{4} < \frac{1}{2}$ ( )

c. $30 \div 4 = 7 R 2$ ( )

d. $\frac{31}{10} = 1\frac{3}{10}$ ( )

e. $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{3}{8}$ ( )

e. 18 hundreds ÷ 6 = 8 tens ( )

Cumulative Assessment 14 Till lesson 7 unit 9

1. Write three equivalent fractions to each fraction.

a. $\frac{2}{3}$ = ______ = ______ = ______

b. $\frac{5}{10}$ = ______ = ______ = ______

c. $\frac{6}{18}$ = ______ = ______ = ______

d. $\frac{4}{7}$ = ______ = ______ = ______

e. $\frac{1}{5}$ = ______ = ______ = ______

f. $\frac{12}{20}$ = ______ = ______ = ______

2. Choose the correct answer.

a. $\frac{5}{7} <$ ______

A. 1 B. $\frac{3}{7}$ C. $\frac{1}{2}$ D. $\frac{1}{9}$

b. $\frac{3}{9} + \frac{1}{9} + 2 =$ ______

A. $2\frac{4}{9}$ B. $2\frac{4}{18}$ C. $\frac{6}{9}$ D. $2\frac{3}{9}$

c. $5\frac{1}{4} =$ ______

A. $\frac{20}{4}$ B. $\frac{22}{4}$ C. $\frac{21}{4}$ D. $\frac{19}{4}$

d. $5 - 2\frac{1}{5} =$ ______

A. $2\frac{1}{5}$ B. $3\frac{1}{5}$ C. $2\frac{4}{5}$ D. $2\frac{3}{5}$

e. $\frac{3}{7}$ is equivalent to ______

A. $\frac{6}{21}$ B. $\frac{9}{14}$ C. $\frac{9}{21}$ D. $\frac{9}{28}$

3. Put (✓) for the correct statement and (X) for the incorrect statement.

a. 1 is the identity element in the multiplication operation. ( )

b. The two fraction $\frac{3}{4}$ and $\frac{21}{28}$ are not equivalent. ( )

c. $47 \div 3 = 15$ R 1 ( )

d. $8 + 2 \times 9 = 26$ ( )

4. Ahmed have 12 cakes. $\frac{3}{4}$ of them are choclete.
How many choclate cake are there.

Cumulative Assessment 15 Till lesson 8 unit 9

1. Choose the correct answer.

a. $7 \times \frac{1}{4} =$ ______

A. $\frac{7}{4}$ B. $\frac{7}{28}$ C. $\frac{1}{28}$ D. $7\frac{1}{4}$

b. $46 \div 8 =$ ______

A. 4 R 6 B. 6 R 2 C. 5 R 6 D. 7 R 2

c. $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} =$ ______

A. $\frac{5}{3}$ B. $\frac{1}{3} \times 4$ C. $\frac{4}{12}$ D. $\frac{1}{12}$

d. $1 + \frac{2}{7} + \frac{1}{7} + 3 =$ ______

A. $\frac{7}{7}$ B. $\frac{6}{7}$ C. $7\frac{3}{7}$ D. $4\frac{3}{7}$

2. Complete.

a. $\frac{43}{5} =$ ______ (as a mixed number)

b. $7\frac{2}{5} - 1\frac{1}{5} =$ ______

c. $\frac{5}{9} = \frac{__}{27}$

d. $7 + 5 \times 2 - 1 =$ ______

3. Compare the following using (> , < or =).

a. $6 \times \frac{1}{4}$ ◯ $\frac{2}{4} + \frac{3}{4}$

b. $7 \times (5 - 2)$ ◯ $1 + 4 \times 5$

c. $\frac{13}{7}$ ◯ $\frac{11}{7}$

d. $\frac{1}{2}$ ◯ $2 \times \frac{1}{7}$

4. How many $\frac{1}{7}$ long wooden pegs can be cut from a plank that is $\frac{6}{7}$ m long?

____

5. Write the multiplication sentence for each of the following.

a. $\frac{1}{4} + \frac{1}{4}$ ______

b. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$ ______

c. $\frac{1}{9} + \frac{1}{9} + \frac{1}{9}$ ______

d. $\frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10}$ ______

Cumulative Assessment 16 Till lesson 9 unit 9

1. Choose the correct answer.

a. $1\frac{4}{7}+5\frac{2}{7}=$ ....

A. $6\frac{6}{14}$ B. $6\frac{8}{7}$ C. $6\frac{6}{7}$ D. $7\frac{6}{7}$

b. $\frac{13}{7}$ ◯ $\frac{13}{5}$

A. > B. < C. =

c. .... $\div 8 = 30$

A. 24 B. 240 C. 110 D. 11

d. $125 + 498 =$ ....

A. 613 B. 473 C. 373 D. 623

e. $\frac{3}{4}=$ ....

A. $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$ B. $\frac{1}{3}+\frac{1}{3}+\frac{1}{3}$ C. $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$ D. $\frac{3}{4}+\frac{3}{4}+\frac{3}{4}$

2. Complete.

a. $3\frac{1}{8}+$ .... $=7\frac{5}{8}$

b. $3\frac{2}{5}=$ .... (as an improper fraction)

c. $7\times\frac{1}{9}=$ ....

d. $\frac{7}{8}=\frac{21}{...}$

e. $\frac{2}{7}=\frac{...}{...}=\frac{...}{...}=\frac{...}{...}$

3. Rania lost $\frac{1}{10}$ of the marbles while she is on the court. She lost another $\frac{8}{10}$ on her way to home.

What is the proper fraction that represents the marbles lost from her?

....

4. Ahmed has a homework consisting of eight problems. He finished solving $\frac{1}{8}$ of it before returning home. When he came home, he completed $\frac{5}{8}$ of it. What fraction represents the remainder of the homework?

....

Cumulative Assessments on UNIT 10

Cumulative Assessment 17 Till lesson 1 unit 10

1. Write each of the following as a decimal.

a. $\frac{8}{100} =$ ....

b. $\frac{3}{10} =$ ....

c. $\frac{15}{100} =$ ....

d. $\frac{35}{100} =$ ....

e. $\frac{1}{100} =$ ....

f. $\frac{7}{10} =$ ....

2. Write each of the following as a fraction.

a. $0.8 =$ ....

b. $0.09 =$ ....

c. $0.18 =$ ....

d. $0.74 =$ ....

e. $0.4 =$ ....

f. $0.06 =$ ....

3. Put (✓) to the correct statement and (✗) to the incorrect statement.

a. $7 \times (5 - 2) = 21$ (   )

b. $0.2 = \frac{2}{100}$ (   )

c. $\frac{3}{5} + \frac{1}{5} = \frac{4}{10}$ (   )

d. $7 \times \frac{1}{10} = \frac{7}{10}$ (   )

e. $0.06 = 0.6$ (   )

4. Complete.

a. $\frac{42}{8} =$ .... (as a mixed number)

b. .... $- 1\frac{2}{5} = 3\frac{1}{5}$

c. $2\frac{3}{4} - \frac{1}{4} =$ ....

d. $\frac{5}{5} = \frac{\dots}{9}$

e. $4 \times 6 + 5 \times 3 =$ ....

5. Ahmed placed 24 paints equally on 8 tables. How many paints were placed on each table ?

....

Cumulative Assessment 18 Till lesson 2 unit 10

1. Write the value and the place value of the circled digit in each of the following.

a. 7.(4)5 ………… , …………

b. 13.7(3) ………… , …………

c. 45(1).7 ………… , …………

d. (2)02.94 ………… , …………

2. Write in word form.

a. 7.18 …………

b. $1 + 0.7 + 0.03$ …………

c. 6 ones and 2 hundredths …………

3. Write in standard form.

a. $5 + 0.6 + 0.02$ …………

b. Seven and eight hundredths …………

c. 4 Ones , 7 Tenths and 4 Hundredths …………

4. Put (✓) to the correct statement and (✗) to the incorrect statement.

a. The place value of the digit 8 in the number 19.28 is Hundredths. (   )

b. $\frac{3}{6} = \frac{5}{20}$ (   )

c. $\frac{5}{3} > \frac{5}{6}$ (   )

d. $3 \times \frac{1}{5} = \frac{3}{15}$ (   )

e. $89 + 2 - 4 \times 3 = 261$ (   )

f. $\frac{1}{100} = 0.01$ (   )

5. Find the result of each of the following.

a. $\frac{4}{9} + \frac{1}{9} + 1 + \frac{2}{9} =$ …………

b. $7,851 - 475 =$ …………

c. $525 \div 3 =$ …………

d. $4,789 + 9,321 =$ …………

Cumulative Assessment 19 Till lesson 3 unit 10

1. Write each of the following in a fraction form.

a. 1.7 = ...
b. 5.24 = ...
c. 11.87 = ...
d. 2.05 = ...
e. 14.9 = ...
f. 20.23 = ...

2. Complete.

a. 2 = ... Tenths
b. 3.7 = ... Hundredths
c. 10.4 = ... Hundredths.
d. .... = 79 Tenths
e. 420 Hundredths = ...
f. $\frac{735}{100}$ = ... Hundredths

3. Match.

a.	$3\frac{8}{10}$	1.	3 + 0.08
b.	$2\frac{1}{5}+1\frac{2}{5}$	2.	0.38
c.	3.08	3.	6
d.	38 Hundredths	4.	$3\frac{3}{5}$
e.	4 + 8 ÷ 4	5.	three and eight tenths

4. Write the fractions : $\frac{5}{10}$, $\frac{5}{12}$, $\frac{5}{11}$, $\frac{5}{15}$, $\frac{5}{7}$ in an ascending order.

5. Mervat has a brother of height $70\frac{2}{10}$ cm.

- Express the height in the form of a decimal.
- How can you rewrite $70\frac{2}{10}$ cm using tenths only?

....

....

Cumulative Assessment 20 Till lesson 4 unit 10

1. Write an equivalent fraction for each.

a. $\frac{3}{10}$ = ________ b. $\frac{70}{100}$ = ________ c. $\frac{5}{10}$ = ________

d. $\frac{90}{100}$ = ________ e. $\frac{8}{10}$ = ________ f. $\frac{10}{100}$ = ________

2. Choose the correct answer.

a. $\frac{7}{9} + \frac{2}{9} =$ ________

A. 1 B. $\frac{9}{18}$ C. $\frac{1}{2}$ D. $\frac{5}{9}$

b. $6 \times (2 - 1) =$ ________

A. 2 B. 11 C. 7 D. 6

c. 7 Tenths is equivalent to ________

A. 0.70 B. $\frac{7}{100}$ C. 0.07 D. $\frac{77}{100}$

d. Which of the following is not equivalent to $1\frac{3}{10}$?

A. 1.3 B. 1.30 C. 1.03 D. $1\frac{30}{100}$

e. $3\frac{2}{7} =$ ________ (as an improper fraction)

A. $\frac{42}{7}$ B. $\frac{21}{3}$ C. $\frac{13}{7}$ D. $\frac{23}{7}$

3. Complete.

a. $7\frac{2}{9} +$ ________ $= 8\frac{1}{9}$

b. 2.19 = ________ Hundredths.

c. $\frac{3}{8} = \frac{18}{__}$

d. $77 \div 8 =$ ________

e. $\frac{3}{10}$ is equivalent to ________

4. Write in expanded form each of the following.

a. 3.79 ________

b. Six and four hundredths ________

c. 4 Ones, 8 Tenths and 9 Hundredths ________

Cumulative Assessment 21 Till lesson 5 unit 10

1. Use (>, < or =) to compare.

a. 0.3 ◯ 0.25

b. 0.18 ◯ 0.8

c. 0.51 ◯ 0.15

d. $\frac{7}{10}$ ◯ 0.64

e. 3 Tenths ◯ 0.3

f. 2 Hundredths ◯ 0.2

g. 0.24 ◯ 24 Tenths

h. 2 Ones and 3 Tenths ◯ 2.29

2. Put (✓) to the correct statement and (✗) to the incorrect statement.

a. $7.29 < 7.5$ (   )

b. $5.03 < 5 + 0.3$ (   )

c. $24 \div 7 = 3 \text{ R } 3$ (   )

d. $\frac{7}{100} = 0.7$ (   )

e. $5 \times \frac{1}{4} = \frac{5}{20}$ (   )

f. $\frac{3}{4} > \frac{3}{5}$ (   )

3. A rectangle of length $7\frac{1}{6}$ cm and width $2\frac{1}{6}$ cm Calculate its perimeter.

4. Nermine ate 0.7 of her food. Her brother at $\frac{3}{10}$ of his food. Who ate more ?

5. Join.

a. Three and twenty-two hundredths

b. 3.7 is equivalent to

c. $2\frac{1}{11} + 1\frac{1}{11}$

d. 22 hundredths = ——

1. $3\frac{2}{11}$

2. 0.22

3. $3\frac{70}{100}$

4. 3.22

Cumulative Assessment 22 Till lesson 6 unit 10

1. Find the result.

a. $2\frac{5}{10}+3\frac{21}{100}=$ ....

b. $\frac{2}{10}+\frac{21}{100}+2\frac{5}{10}=$ ....

c. $2\frac{3}{5}+7\frac{1}{5}=$ ....

d. $\frac{32}{100}+\frac{24}{100}+\frac{7}{10}=$ ....

e. $8.782+5.475=$ ....

f. $261\div4=$ ....

2. Complete.

a. $\frac{40}{100}=\frac{\ldots}{10}$

b. $7.27=$ .... (in word form)

c. $\frac{9}{\ldots}=1$

d. $2-\frac{1}{3}=$ ....

e. $8\frac{7}{9}-$ .... $=2\frac{1}{9}$

f. The place value of the digit 7 in the number 13.57 is ....

3. Choose the correct answer.

a. $\frac{7}{10}+\frac{2}{10}=\frac{\ldots}{100}$

A. 9 B. 90 C. 5 D. 50

b. $\frac{3}{10}+\frac{7}{10}=$ ....

A. $\frac{10}{100}$ B. $\frac{1}{10}$ C. 10 D. 1

c. $\frac{7}{8}>$ ....

A. $\frac{8}{8}$ B. $\frac{1}{2}$ C. $1\frac{1}{4}$ D. $\frac{7}{10}$

d. $\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}=$ ....

A. $\frac{5}{8}$ B. $\frac{5}{40}$ C. $\frac{6}{8}$ D. $\frac{1}{40}$

e. $3\times6\div9=$ ....

A. 1 B. 2 C. $3\frac{1}{3}$ D. $3\frac{2}{3}$

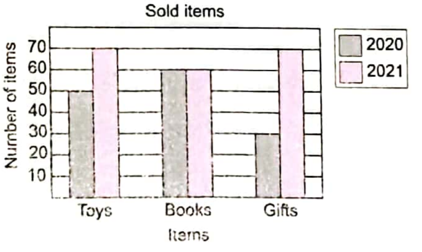
4. Amany has $\frac{7}{10}$ meter of cloth, she went to shop and bought $\frac{35}{100}$ meter cloth. How much cloth Amany has now ?

....

Cumulative Assessments on UNIT 11

Cumulative Assessment 23 Till lesson 1 unit 11

1. Choose the correct answer.



a. The opposite graph shows ....

A. pictograph.
B. line plot.
C. bar graph.
D. double bar graph.

b. $\frac{3}{100}$ = ...

A. 0.3 B. 0.03 C. 3 D. 30

c. $3\frac{1}{3} + 1\frac{1}{3}$ = ...

A. $4\frac{2}{3}$ B. $4\frac{2}{6}$ C. $2\frac{2}{6}$ D. $2\frac{2}{3}$

d. $\frac{7}{9}$ 1

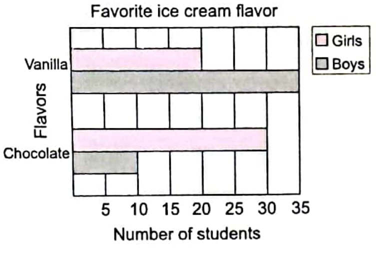
A. > B. < C. =

e. Five and one hundredths = ...

A. 5.1 B. 51 C. 5.01 D. $5\frac{1}{10}$

---

2. Put (✓) to the correct statement and (✗) to the incorrect statement.



a. In the opposite double bar graph, the difference of the number of boys between vanilla and chocolate is 15 boys. ( )

b. $1 - \frac{5}{7} = \frac{2}{7}$ ( )

c. $\frac{6}{10}$ is equivalent to $\frac{60}{10}$ ( )

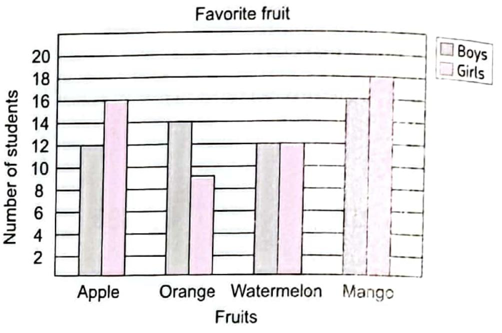
d. $\frac{5}{11} > \frac{5}{3}$ ( )

e. $7 \times \frac{1}{8} = \frac{7}{8}$ ( )

3. Arrange in an ascending order.

$\frac{7}{9}$, $\frac{5}{9}$, $\frac{4}{9}$, $\frac{6}{9}$, $\frac{2}{9}$

4. **The following data shows the favorite fruit between boys and girls. Observe the double bar graph, then answer the questions.**



a. How many boys liked orange ?

b. How many girls liked apple ?

c. Which fruit is liked the most ?

d. Which fruit is liked the least ?

e. Which fruit shows the same number of boys and girls ?

f. What is the total number of boys and girls liked orange ?

g. How many more girls liked mango than watermelon ?

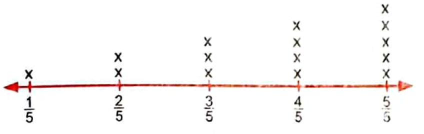
Cumulative Assessment 24 Till lesson 2 unit 11

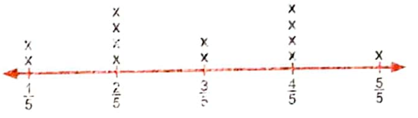
1. Choose the correct answer.

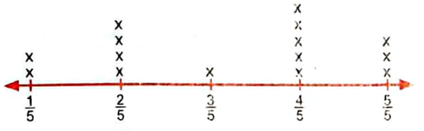
a. The line plot which shows the following data that shows the walking distance each day for 15 students in kilometers

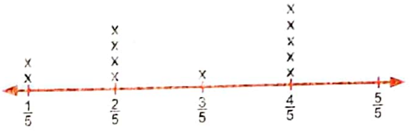
$\frac{4}{5}$	$\frac{2}{5}$	$\frac{4}{5}$	$\frac{2}{5}$	1	$\frac{4}{5}$	$\frac{2}{5}$	1	$\frac{1}{5}$	$\frac{3}{5}$	$\frac{2}{5}$	1	$\frac{4}{5}$	$\frac{1}{5}$	$\frac{4}{5}$

is ....

A. 

B. 

C. 

D. 

b. Fifty-seven Hundredths in standard form is ....

A. 5.7 B. 0.57 C. 57 D. 0.75

c. $\frac{8}{10} = \frac{4}{\square}$

A. 20 B. 10 C. 5 D. 2

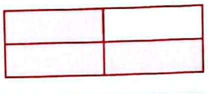
d. $0 \bigcirc \frac{2}{7}$

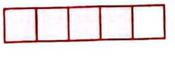
A. > B. < C. =

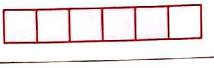
e. Which of the following fractions is less than $\frac{1}{2}$?

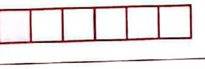
A. $\frac{7}{7}$ B. $\frac{9}{10}$ C. $\frac{1}{4}$ D. $\frac{4}{8}$

f. The model which represents $\frac{5}{6}$ is ....

A. 

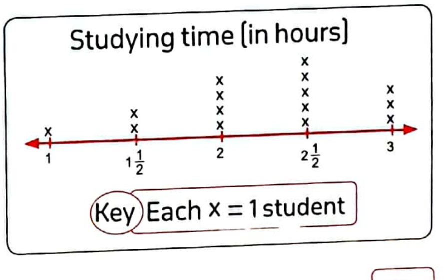
B. 

C. 

D. 

2. Put (✓) to the correct statement and (✗) to the incorrect statement.

a. In the opposite line plot, the number of students which study 2 hours or more is 8 students. ( )



b. 70 Tenths is equivalent to 0.7 ( )

c. $\frac{34}{100} + \frac{4}{10} = \frac{38}{100}$ ( )

d. $0.7 > 0.67$ ( )

e. $37 \div 5 = 7$ R 2 ( )

3. Find the result.

a. $7{,}000 - 4{,}562 =$ ______

b. $535 \div 5 =$ ______

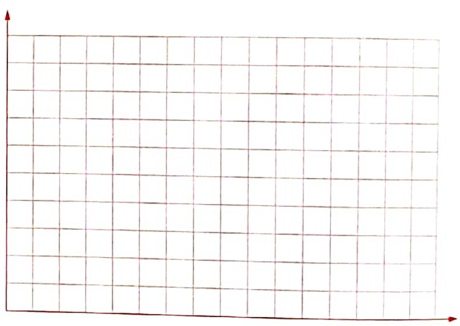
c. $3\frac{1}{4} - 2\frac{3}{4} =$ ______

d. $75 - 50 + 15 \div 3 =$ ______

4. The following data shows the jump distances for 5 students (in meters) in two rounds.

Rounds \ Name	Noura	Maged	Sama	Youssef	Ramy
1st Round	$\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{3}{4}$	$1\frac{3}{4}$	$1\frac{1}{2}$
2nd Round	$\frac{3}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{4}$	1

Represent these data , then answer the questions.



a. Which student jumped the highest distance in the first round ?

b. Which student jumped the highest distance in the second round ?

c. Which student jumped less distance in the second round than the first round ?

d. What is the difference of Youssef's jump distance between the two rounds ?

Cumulative Assessment 25 Till lesson 3 unit 11

1. Choose the correct answer.

a. The graph which represents the data of marks of 3 students in two different subjects is ________

A. bar graph B. line plot C. pictograph D. double bar graph

b. Which equation of the following represents $\frac{7}{8}$?

A. $\frac{1}{8}+\frac{1}{8}+\frac{4}{8}$ B. $\frac{3}{8}+\frac{4}{8}$ C. $\frac{7}{4}+\frac{7}{4}$ D. $\frac{7}{8}+\frac{1}{8}$

c. 10.3 = ________ Tenths.

A. 10.3 B. 103 C. 1030 D. 1.03

d. 3.05 (—) 3 Ones and 5 Tenths

A. > B. < C. =

e. $2{,}022 \div 2 =$ ________

A. 111 B. 1,110 C. 1,011 D. 1,101

f. The graph which uses to show the frequency of data on a number line is ________

A. bar graph. B. line plot. C. pictograph. D. double bar graph.

2. Put (✓) to the correct statement and (X) to the incorrect statement.

a. $\frac{7}{9}<\frac{7}{8}$ ( )

b. $2.7 = 2\frac{7}{100}$ ( )

c. $3\times\frac{1}{4}=\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$ ( )

d. $8+8\times2-5=19$ ( )

e. $1\frac{7}{10}=1\frac{7}{100}$ ( )

3. Order the following fractions in a descending order.

$\frac{2}{7}$, $\frac{2}{5}$, $\frac{2}{9}$, $\frac{2}{4}$, $\frac{2}{10}$

____

4. Petra surveyed her class. She asked them how many hours they spent doing daily chores and then plotted their answers.
Complete the table she organized, represent the data she collected , then answer the questions.

a. How many students spent for 3 hours ?

b. What is the time the most students spent ?

c. How many students spent for 2 hours or more ?

d. How many students did surveyed in Petra's data in all ?

Hours spent doing daily chores

Number of hours	Tally	Total
$\frac{1}{2}$	ǀ	
1	ǀǀ	
$1\frac{1}{2}$	ǀǀǀǀ	
2	卌 ǀ	
$2\frac{1}{2}$	卌 ǀǀǀ	
3	卌	
$3\frac{1}{2}$	ǀǀǀ	
4	ǀǀ	
$4\frac{1}{2}$	ǀ	

Key

Model 1

1. Choose the correct answer.

a. $25 \div 2 =$ ______

A. 12 R 0 B. 12 R 1 C. 12 R 2 D. 12 R 3

b. $5 + 5 \times 5 =$ ______

A. 50 B. 55 C. 555 D. 30

c. Which of the following is a unit fraction ?

A. $\frac{2}{3}$ B. $\frac{1}{5}$ C. $\frac{3}{7}$ D. $1\frac{1}{5}$

d. Fifty hundredths = ______

A. 5,000 B. 0.05 C. 0.5 D. 5.05

e. $120 \div 4 =$ ______

A. 3 B. 30 C. 40 D. 300

f. Which of the following fractions is equivalent to 1 ?

A. $\frac{2}{7}$ B. $1\frac{5}{7}$ C. $\frac{7}{2}$ D. $\frac{7}{7}$

2. Write (✓) to the correct statement and (X) to the incorrect statement.

a. $73 \div 9 = 8$ and the remainder = 1 ( )

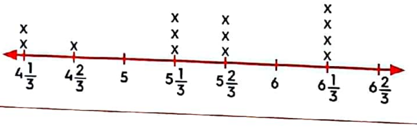
b. $60.57 = 60 + 0.5 + 0.7$ ( )

c. $\frac{2}{10} + \frac{3}{10} = \frac{50}{100}$ ( )

d. $18 \times 2 + 8 - 2 = 18 \times 7$ ( )

e. $\frac{5}{3} > 1$ ( )

f. The number which is the most repeated is $5\frac{2}{3}$



( )

3. Complete.

a. 24 hundreds ÷ 8 = ______ hundreds

b. $\frac{20}{25} = \frac{\ldots}{5}$

c. The place value of the digit 0 in the number 10.62 is ________

d. $6 \times 2 + 30 \div 6 =$ ________

e. The numerator of the fraction $\frac{3}{7}$ is ________

f. The value of the digit 6 in the number 3.26 is ________

---

4. Match.

a.	31×5	1.	115
b.	$230 \div 2$	2.	155
c.	$17{,}621 - 17{,}386$	3.	13
d.	$3 + 15 \div 3 + 5$	4.	235

---

5. Write (< , > or =).

a. $3 + 0.03 + 0.3$	◯	3.33
b. 24 tenths	◯	24 hundredths
c. 5.2	◯	5.20
d. $3\frac{7}{100}$	◯	3.7

---

6. Giovanni is reading a book of 120 pages. If he reads 6 pages per day, **how long will it take him to finish the book ?**

____

---

7. Find :

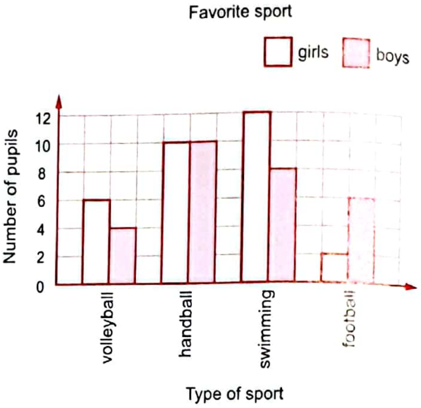
a. $3\frac{2}{5} - 2\frac{1}{5}$ | b. $2\frac{4}{7} + 1\frac{3}{7}$ | c. $2\frac{1}{10} + \frac{1}{100}$

8. **Answer each of the following as required.**

a. 3.4 = ………… (as a fraction)

b. 2.02 = ………… (as a fraction)

9. By using the opposite graph ,answer the following questions:



a. **Complete the table.**

sport / pupils	volleyball	handball	swimming	football
Boys	4	……	……	……
Girls	……	……	……	2

b. **How many boys prefer swimming ?**

c. **How many girls prefer volleyball ?**

Model 2

1. Choose the correct answer.

a. $\frac{73}{10} =$ .... (as a mixed number)

A. $70\frac{3}{10}$ B. $10\frac{3}{7}$ C. $7\frac{3}{10}$ D. $7\frac{1}{7}$

b. $\frac{2}{10} =$ .... (as a decimal)

A. 1.2 B. 2.1 C. 0.2 D. 0.22

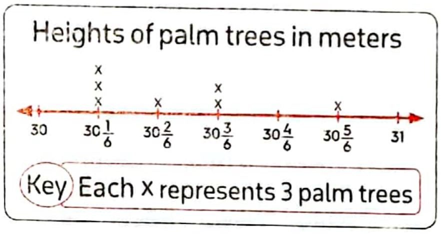
c. $5+5+5+5+5-12 =$ ....

A. $5 \times 6 - 12$ B. $20 - 12$ C. $5 \times 5 - 12$ D. $5 \times 5 + 12$

d. In the problem $1{,}866 \div 6$, the quotient is between .... and ....

A. 100 and 200 B. 200 and 300 C. 300 and 400 D. 400 and 500

e. The opposite line plot represents the heights of some palm trees in meters, then the number of all the palm trees in this graph is ....



A. 7 B. 14

C. 21 D. 70

---

2. Write (✓) to the correct statement and (✗) to the incorrect statement.

a. $\frac{2}{10} + \frac{6}{10} = \frac{8}{20}$ ( )

b. $\frac{5}{7} > \frac{1}{2}$ ( )

c. The double bar graph shows one set of data on the same graph. ( )

d. The number of the unit fractions of the fraction $\frac{8}{9}$ is 8 ( )

e. $3 + 3 \times 3 - 3 =$ zero ( )

f. If $864 \div x = 432$, then $x = 2$ ( )

---

3. Complete.

a. $3 + 0.03 + 0.3 =$ ....

b. $2\frac{1}{6} =$ .... (as an improper fraction)

c. $\frac{2}{10} + \frac{5}{100} =$ ____________

d. $81 + 54 \div 6 =$ ____________

e. The division problem in the opposite model

is ____________ $\div$ ____________

5	$5 \times 20 = 100$	$5 \times 5 = 25$	
	20	5	R3

4. Compare, write (< , > or =) for each ◯

a. 1 ◯ 0.1

b. $1\frac{2}{3}$ ◯ $\frac{5}{3}$

c. $3 + 1 \times 5 - 3$ ◯ $2 + 1 \times 5 - 2$

d. $370 \div 9$ ◯ $370 \div 5$

5. There are 10 beanbags, four of them are blue. **What part of the group of beanbags are blue ?** [Write fraction and decimal]

____

6. Find :

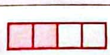
a. 7,341 + 1,532

b. 7,000 − 3,499

c. $3{,}159 \div 9$

d. 34×15

7. Complete the table.

Model	Fraction	Unit fraction	Equation to form the fraction
a. 	____	____	____
b.	$\frac{5}{6}$	____	____

8. The opposite table shows the heights of some pencil colors with Ramy. Represents this data using a line plot, then answer the following questions.

The color	The height in cm
Red	$4\frac{1}{4}$, $4\frac{2}{4}$, $4\frac{3}{4}$
Blue	$4\frac{1}{4}$, $4\frac{3}{4}$, $4\frac{3}{4}$
Green	4 , 5 , $4\frac{2}{4}$
Black	$4\frac{1}{4}$, $4\frac{3}{4}$, 5

a. **How many pencils whose heights are more than $4\frac{2}{4}$ cm ?**

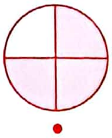
b. **What is the greatest height of the pencils ?**

c. **What is the smallest height of the pencils ?**

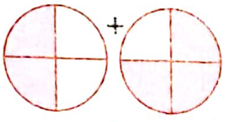
(Key) Each × represents .... pencil

9. **Match.**

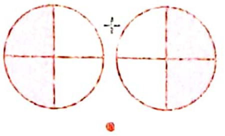
a.



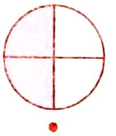
b.



c.



d.



1. $\frac{5}{4}$

2. $\frac{3}{4}$

3. $\frac{4}{4}$

4. $\frac{2}{4}$

Model 3

1. Choose the correct answer.

a. The value of the digit 5 in the number 7.45 is ______

A. 5 B. 0.5 C. 0.05 D. 50

b. Which is the first step in evaluating $19 - 14 + 2 \times 10 - 5$?

A. $19 - 14$ B. 2×10 C. $14 + 2$ D. $10 - 5$

c. $3{,}500 \div$ ______ $= 700$

A. 2 B. 3 C. 4 D. 5

d. $3\frac{2}{5} =$ ______ (as an improper fraction)

A. $\frac{17}{3}$ B. $\frac{17}{5}$ C. $\frac{32}{5}$ D. $\frac{32}{3}$

e. 卌 ||| = ______

A. 53 B. 7 C. 8 D. 35

f. $23 \div 5 = 4$ R ______

A. 1 B. 2 C. 3 D. 4

2. Write (✓) to the correct statement and (X) to the incorrect statement.

a. $93 \div 3 = 13$ ( )

b. $20 \div 5 + 5 = 9$ ( )

c. $3\frac{7}{10}$ is equivalent to 3.7 ( )

d. $\frac{21}{5} = 4\frac{1}{5}$ ( )

e. The suitable way for representing the favorite color for 30 students is the line plot. ( )

f. $6 + 5 \times 2 - 2 = 14$ ( )

3. Complete.

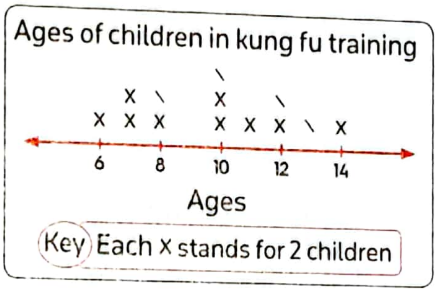
a. 2.3 = ______ tenths.

b. $10 \times 3 + 15 \div 5 =$ ....

c. $\frac{6}{7} \times \frac{3}{3} =$ ....

d. $3{,}200 \div$ .... $= 400$

e. By using the opposite line plot, the number of children whose ages are 10 years old is ....



f. $3\frac{3}{100} =$ .... (as a decimal)

4. **Match.**

a.	$\frac{3}{5}$	1.	$3 - 1\frac{3}{5}$
b.	$\frac{2}{5}$	2.	$\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$
c.	$3\frac{1}{5}$	3.	$3 + \frac{1}{5}$
d.	$\frac{36}{5}$	4.	$\frac{2}{5} \times \frac{3}{3}$
e.	$1\frac{2}{5}$	5.	$7\frac{1}{5}$

5. **Compare, write (< , > or =) for each ◯**

a. $325 \div 7$ ◯ $325 \div 4$

b. $2 + 2 \times 2 - 2$ ◯ $2 - 2 \div 2 + 2$

c. $\frac{1}{11}$ ◯ $\frac{5}{6}$

d. 5.4 ◯ 5.40

6. **Find the result of each of the following (You can use any strategy you prefer) :**

a. 9,230 – 455

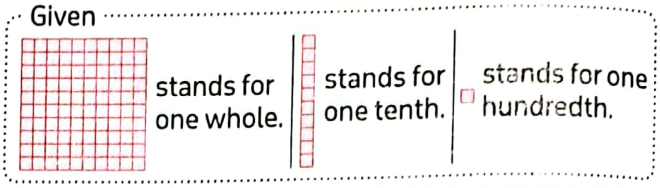
b. 349 + 199

c. 62 × 18

d. 725 ÷ 8

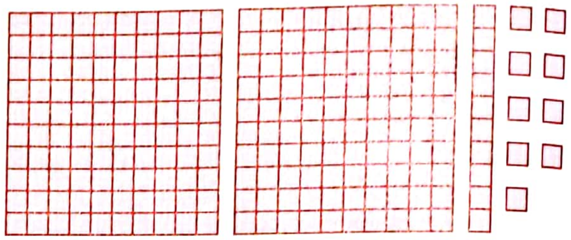
7. Mathew has 18 apples. Two thirds of the apples are red. How many apples are red ?

8. **Using the opposite model , answer each of the following.**



a. Standard form :

b. Word form :



9. The following data show the number of hours that Ayman and Nora study in 6 days. Represent this data by using a double bar graph.

Day / Name	Sat.	Sun.	Mon.	Tue.	Wed.	Thu.
Ayman	3	$4\frac{1}{2}$	3	$4\frac{1}{2}$	$3\frac{1}{2}$	2
Nora	4	5	$2\frac{1}{2}$	5	$4\frac{1}{2}$	3

Model 4

1. Complete.

a. If $2,166 \div 6 = 361$, then the divisor is ....

b. $9,342 \div 3$ is closer to ....

c. $10 \times 3 + 15 \div 5 =$ ....

d. $\frac{2}{3} = \frac{\ldots}{9}$

e. $2.4 =$ .... tenths.

f. Five and five hundredths = ...

2. Write (✓) to the correct statement and (✗) to the incorrect statement.

a. Line plot often used when the data shows numbers or measurements. (   )

b. $2 + 10 - 8 = 3 \times 4 - 8$ (   )

c. $320 \div 4 = 80$ R 3 (   )

d. If $1,095 \div 3 = 365$, then the quotient is 365 (   )

e. $\frac{5}{3} = 1\frac{3}{5}$ (   )

f. 1.7 is smaller than 1.69. (   )

3. Choose the correct answer.

a. The following data show the heights of 20 pupils in class 4/A in centimeters

110	111	109	108	100	101	103	105	103	104
102	100	103	105	110	104	106	100	109	103

What is the suitable method of representing this data ?

A. line plot B. bar line C. double bar line

b. $4 + \frac{4}{3} =$ ....

A. $4\frac{1}{3}$ B. $\frac{16}{4}$ C. $\frac{12}{3}$ D. $5\frac{1}{3}$

c. Which of the following fractions is greater than 1?

A. $\frac{4}{5}$ B. $\frac{5}{8}$ C. $\frac{7}{5}$ D. $\frac{9}{10}$

d. The digit 4 in 15.42 is in ________ place.

A. ones B. tens C. tenth D. hundredth

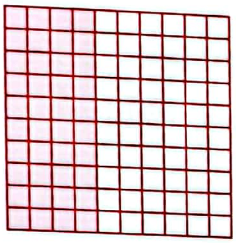
e. The division equation that matches $126 \times 3 = 378$ is ________

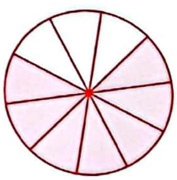
A. $378 - 3 = 126$ B. $378 + 3 = 126$ C. $378 \div 3 = 126$ D. $378 \times 3 = 126$

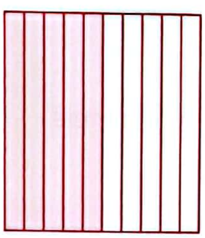
f. $4 \div 1 + 8 \times 2 =$ ________

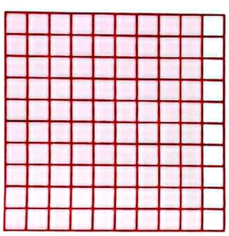
A. 20 B. 24 C. 1 D. zero

4. Match.

a. 

b. 

c. 

d. 

1. 0.90

2. 0.40

3. 0.7

4. 0.5

5. **Compare, write (< , > or =).**

a. 48 – [16 – 6] ◯ [48 – 16] – 6

b. $21 \div 7$ ◯ $210 \div 7$

c. $\frac{7}{3}$ ◯ $\frac{3}{7}$

d. 3.4 ◯ 34

6. Draw a circle around the numbers that equals to 6 ones and 42 hundredths.

60.42 , 6.42 , 6 + 0.40 + 0.02 , 4.26 , 42.6

7. There are 15 birds on a tree. $\frac{3}{5}$ of them flew away.

What is the number of birds that flew away ?

---

8. **Find :**

a. $336 \div 6$

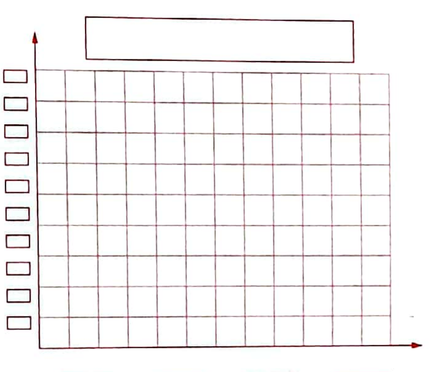
b. 34.751 + 13.143

c. $678 \div 6$

d. 3.240 – 1.230

9. The following data shows the internet usage for four friends. The data are given to the nearest $\frac{1}{4}$ of hour. Use the following table to complete the bar graph , then answer the questions.

Name	Samer	Amira	Islam	Enas
Number of hours	$\frac{3}{4}$	$2\frac{1}{4}$	$1\frac{1}{2}$	2



a. **Who used the internet the most time ?**

b. **Who used the internet the least time ?**

c. **What is the difference between Enas and Samer ?**

Model 5

1. Complete.

a. $3.2 = 3 +$ ....

b. $3\frac{1}{5} =$ .... (as an improper fraction)

c. $\frac{8}{10} = \frac{4}{\ldots}$

d. $5 + 8 \div 2 =$ ....

e. $13 \div$ .... $= 6$ R 1

f. 27 Hundreds $\div 9 =$ ....

---

2. Choose the correct answer.

a. What is the value of X in the opposite division problem ?

$$\begin{array}{r|l} & X \\ 4 & 292 \\ & -28\downarrow \\ & 12 \\ & -12 \\ & 0 \end{array}$$

A. 73 B. 73 R 1 C. 73 R 2 D. 73 R 3

b. What is the difference 70,000 – 7,777 ?

A. 73,333 B. 62,223 C. 77,777 D. 7

c. Which of the following is NOT true ?

A. $\frac{5}{15} = \frac{1}{3}$ B. $\frac{1}{6} = \frac{3}{18}$ C. $\frac{7}{8} = \frac{8}{17}$ D. $\frac{3}{3} = \frac{4}{4}$

d. Which fraction is equivalent to 0.3 ?

A. $\frac{30}{10}$ B. $\frac{3}{100}$ C. $\frac{3}{10}$ D. $\frac{300}{100}$

e. $\frac{2}{10} + \frac{3}{100} = \frac{\ldots}{100}$

A. 23 B. 5 C. 32 D. 50

f. From the opposite tally table, the value of X is ....

A. 6

B. 7

C. 8

D. 9

Name	Tally	Sum
Amgad	////	4
Ola	~~////~~	5
Nora	~~////~~ ~~////~~	10
Alaa		X
Noha	//	2
Sum		30

3. Put (✓) to the correct statement and (✗) to the incorrect statement.

a. 1 dm = 0.1 m ( )

b. The two fractions $\frac{6}{15}$ and $\frac{2}{5}$ are equivalent. ( )

c. The fractions $\frac{2}{10}, \frac{9}{10}, \frac{5}{10}$ are ordered from the least to the greatest. ( )

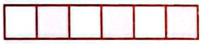
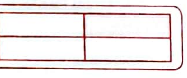
d. The quotient of $4\overline{)369}$ is 92 R 1 ( )

e. $5 + 5 \times 5 = 50$ ( )

f. The best type of graph that represents the following data is a bar graph. ( )

Colors	Red	White	Green	Blue
Boys	25	15	35	10
Girls	30	40	20	45

4. Join.

a.	$\frac{1}{3} + \frac{1}{3} + \frac{1}{3}$	1.	$\frac{2}{5}$
b.	Two fifths	2.	One
c.	$\frac{2}{7} + \frac{3}{7}$	3.	$\frac{3}{6}$
d.		4.	
e.	One fourth	5.	$\frac{5}{7}$

5. Compare, write (< , > or =).

a. $\frac{5}{5}$ ◯ $\frac{5}{10}$

b. $3 + 3 \times 3$ ◯ $(3 + 3) \times 3$

c. $7,241 \div 9$ ◯ $7,241 \div 4$

d. 11.11 ◯ 1.11

6. **Solve the problems using any strategy you choose.**

a. $7 \times 251 =$ ________

b. $5{,}372 - 198 =$ ________

c. $25 \times 13 =$ ________

d. $7{,}516 + 1{,}321 =$ ________

7. Find the perimeter of a square of side length $1\frac{1}{4}$ m.

8. Giovanni ate 0.7 of his food, his brother Mathew ate $\frac{9}{10}$ of his food. Who ate more ?

9. **The following data shows the walking distances to the nearest $\frac{1}{4}$ kilometer of four friends in two different days.**

Day \ Name	Nada	Nader	Hady	Sally
First Day	$1\frac{1}{2}$	$\frac{3}{4}$	$2\frac{3}{4}$	2
Second day	$1\frac{3}{4}$	1	$1\frac{1}{4}$	$2\frac{1}{2}$

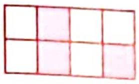
Represent this data by using a double bar graph, then answer the following questions.

a. Who walked the tallest distance in first day ?

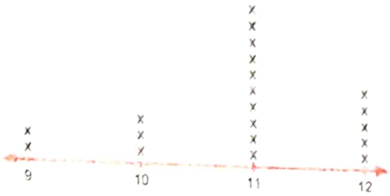
b. Who walked the shortest distance in second day ?

Model 6

1. **Put (✓) to the correct statement and (X) to the incorrect statement.**

a. The model  represents $\frac{3}{8}$ ( )

b. In the opposite line plot, if it represents the ages of 40 students, then each X stands for 4 students. ( )



c. 32 Hundredths = 0.32 ( )

d. $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}+\frac{1}{7}=\frac{1}{7}\times 5$ ( )

e. $715 \times 2 = 1,430$ ( )

f. $5 \div 3 = 1 R 3$ ( )

2. **Complete.**

a. $180 \div 2 =$ ....

b. $736 \div 4 =$ ....

c. $7 + 70 \div 10 - 2 =$ ....

d. $\frac{2}{10}+\frac{24}{100}+\frac{6}{10}=$ ....

e. $213 \times 15 =$ ....

f. 7 Ones, 4 Hundredths and 2 Tenths = ...

3. **Choose the correct answer.**

a. Which type of graph is a suitable for the following table?

Subject	Math	English	Arabic	Science	Art
Hany	20	19	15	18	17
Mona	17	20	19	20	15

A. Double bar graph.

B. Line plot.

C. Bar graph.

b. The fraction which represents letter E on the following number line is ______

A. $\frac{5}{7}$ B. $\frac{5}{8}$ C. $\frac{5}{6}$ D. $\frac{5}{5}$

c. $3 + 0.2 + 0.01 =$ ______

A. 0.321 B. 12.3 C. 3.12 D. 3.21

d. $2 - 2 \div 2 =$ ______

A. 0 B. 2 C. 3 D. 1

e. $9{,}342 \div 3$ is closer to ______

A. 300 B. 3,000 C. 4,000 D. 5,000

f. Which of the following can be represented by a line plot ?

A. Our favorite movie. B. Our heights.

C. Our favorite animal. D. Our favorite food.

---

4. Find the result of each of the following.

a. $3\frac{2}{5} + 1\frac{4}{5} =$ ______

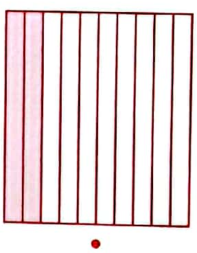
b. $3\frac{4}{7} - 1\frac{3}{7} =$ ______

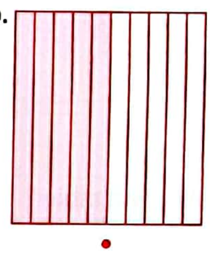
c. $4 \times \frac{1}{9} =$ ______

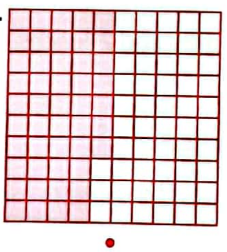
d. $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} =$ ______

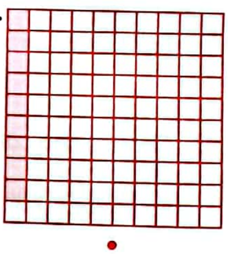
---

5. Join each decimal to its representing shape.

a. 

b. 

c. 

d. 

1. 0.50 2. 0.47 3. 0.20 4. 0.09

6. **Compare , write (< , > or =).**

a. $3 + 0.3 + 0.03$ ◯ 33.3

b. $4 \times \frac{1}{7}$ ◯ $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$

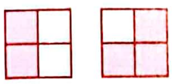
c. 215×3 ◯ 215×7

d. $4 \times 4 - 4 \div 4$ ◯ $3 \times 5 + 0 \times 12$

7. Elen placed 21 paints equally on 3 tables. How many paints were placed on each table ?

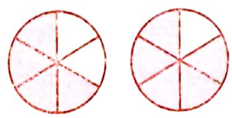
....

8. **Write the following fractions in the form of improper fraction and mixed number.**

a. 

improper ....

mixed ....

b. 

improper ....

mixed ....

9. **Scores obtained by the four friends Youssef, Sameh, Noha and Ola in the pre-test and test are given below. Represent these data by a double bar graph.**

Students Score		
Name of students	Pre-test	Test
Youssef	60	70
Sameh	75	90
Noha	55	55
Ola	80	95

Then , answer the following questions :

a. How has the greatest score in the pre-test ?

b. What is the smallest score in the test ?

c. How has the same score in the pre-test and the test ?

Model 7

1. Choose the correct answer.

a. $5 \div 1 + 5 \times 2 =$ ______

A. 1 B. zero C. 15 D. 55

b. $56 \div 8 =$ ______

A. 7 B. 70 C. 700 D. 7,000

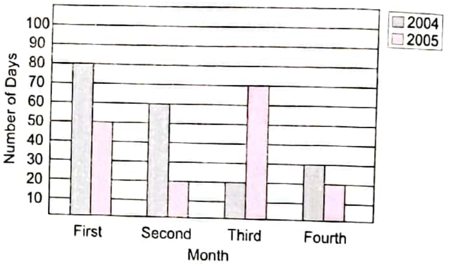
c. which of the following is an improper fraction ?

A. $3\frac{1}{5}$ B. $\frac{4}{9}$ C. $\frac{1}{6}$ D. $\frac{4}{3}$

d. $0.7 =$ ______

A. $\frac{10}{7}$ B. $\frac{100}{7}$ C. $\frac{7}{100}$ D. $\frac{7}{10}$

e. This double bar graph compares the total number of days students were absent over two academic years. Which month has the greatest difference in the number of days ?



A. The first month. B. The second month.

C. The third month. D. The fourth month.

f. Which of the following can not be represented by a line plot ?

A. The number of our family members.

B. Our shoe sizes.

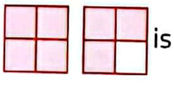
C. Distance between home and school.

D. Our favorite activity in our spare time.

---

2. Complete.

a. The value of the digit 3 in the number 4.53 is ______

b. The improper fraction which represents the model  is ______

c. The quotient of $3,019 \div 3$ equals ______

d. $8 \times 3 + 6 + 2 =$ ______

e. $\frac{3}{10} + \frac{5}{100} =$ ....

f. If $\frac{X}{4} = \frac{2}{8}$ then X = ...

3. Put (✓) to the correct statement and (X) to the incorrect statement.

a. The place value of the digit 8 in the number 7.85 is 0.80 ( )

b. 10.6 = 1060 hundredths. ( )

c. $\frac{3}{9} + \frac{1}{9} + \frac{1}{9} = \frac{5}{9}$ ( )

d. $\frac{9}{5} < \frac{7}{5}$ ( )

e. $5 \times 5 - 5 \div 5 = 4$ ( )

f. $36 \div 4 = 9$ ( )

4. Compare, write (<, > or =)

a. $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3}$ ◯ $\frac{4}{12}$

b. $376 \div 9$ ◯ $376 \div 7$

c. 0.7 ◯ 0.70

d. The number of tally 𝍸||| ◯ The number of tally 𝍸|

5. Match.

a.	$3\frac{1}{5}$	1.	$\frac{16}{3}$
b.	2.7	2.	$\frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9}$
c.	$\frac{4}{9}$	3.	$2\frac{7}{10}$
d.	$2\frac{1}{5} + 3\frac{4}{5}$	4.	6

6. Hala has 28 biscuits to give it to her 9 friends.

How can Hala share the biscuits equally ? What is the left ?

---

7. Find :

a. 7,654 + 3,271

b. 7,000 − 3,542

c. 29 × 13

b. 625 ÷ 5

---

8. Write the required forms for the decimal number 3.27

a. Word form : ____________________

b. Unit form : ____________________

c. Expanded form : ____________________

---

9. Omar and Malek conducted an experiment. They wanted to see how far their friends could roll a heavy ball. They drew a starting line in the dirt and asked six friends to roll a 10 kilograms ball as far as they could from the starting line. They measured the distance in meters to the nearest $\frac{1}{4}$ meter and record their data in a table.

Student	Rana	Salah	Tahani	Ziad	Farouk	Walid
Distance for 10 kg Ball [in m]	$\frac{3}{4}$ m	$1\frac{1}{2}$ m	$1\frac{1}{4}$ m	$2\frac{1}{4}$ m	$1\frac{3}{4}$ m	$2\frac{1}{2}$ m

Create a bar graph that shows Omar and Malek's data.

Remember to include all the elements of a bar graph,

then Answer the following questions :

a. Who has the greatest distance after rolling the ball ?

b. What is the difference between the greatest and smallest distance of rolling the ball ?

Model 8

1. Complete.

a. $2\frac{3}{10} + 4\frac{5}{100} =$ ....

b. $5 = \frac{\ldots}{10}$

c. 0.75 is equivalent to .... (as a fraction)

d. $4\frac{5}{6} +$ .... $= 6\frac{5}{6}$

e. $10 \times 4 + 20 \div 4 =$ ....

f. $73 \div 9 = 8$ R ....

2. Put (✓) to the correct statement and (X) to the incorrect statement.

a. We use the picture to represent the data by double bar graph. (   )

b. $9 + 9 - 9 \times 2 =$ zero (   )

c. If $36 \div 4 = 9$, then : $306 \div 4 = 90$ (   )

d. $\frac{9}{7}$ is a proper fraction. (   )

e. 32 tenths = 3.2 (   )

f. $\frac{17}{100} + \frac{5}{10} = \frac{22}{100}$ (   )

3. Choose the correct answer.

a. $3\frac{7}{10}$ is equivalent to ....

A. 0.37 B. 3.07 C. 3.70 D. 37

b. $\frac{6}{16} =$ ....

A. $\frac{2}{4}$ B. $\frac{12}{30}$ C. $\frac{6}{6}$ D. $\frac{3}{8}$

c. Which of the following fraction is the greatest ?

A. $\frac{2}{7}$ B. $\frac{3}{7}$ C. $\frac{5}{7}$ D. $\frac{7}{7}$

d. In the number 325.41, which digit is in the hundredth place ?

A. 1 B. 2 C. 3 D. 4

e. .... hundreds $\div 5 = 20$ tens.

A. 1 B. 10 C. 100 D. 1,000

f. Which of the following can be represented by a double bar graph ?

A. Sleeping hours every night.

B. Favorite food.

C. Maximum and minimum temperatures in different cities.

D. Length of 5 things on your desk.

4. Join.

a. 1,357 + 3,643 — 1. 2,000

b. 5,162 – 3,162 — 2. 5,000

c. 400 — 3. 396 ÷ 3

d. 132 — 4. 25 × 16

5. Compare , write (< , > or =).

a. $\frac{5}{6}$ ◯ $\frac{3}{8}$

b. $\frac{3}{10}$ ◯ $\frac{30}{100}$

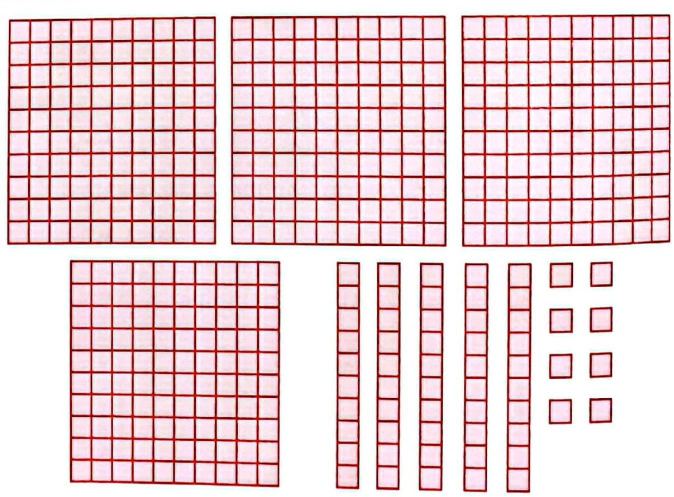
c. $\frac{2}{7}+\frac{3}{7}$ ◯ $\frac{6}{7}-\frac{1}{7}$

d. 214 × 7 ◯ 214 × 17

6. Calculate the area of a square of side length 23 cm.

____

7.



a. Standard form : ____________

b. Word form : ____________

c. Unit form : ____________

d. Expanded form : ____________

8. Find.

a. $2\frac{2}{3}+1\frac{2}{3}$

b. $4\frac{1}{5}-1\frac{4}{5}$

c. $\frac{6}{7}\times\frac{5}{5}$

d. $\frac{5}{10}+\frac{3}{100}$

9. Complete the following table. Use the data and represent it by a double bar graph.

Our Favorite Food				
Food	Tally table		Total	
	Girls	Boys	Girls	Boys
Chicken	𝍸𝍷𝍷𝍷	𝍸𝍷𝍷		
Meat	𝍸	𝍸𝍷		
Fish	𝍷𝍷𝍷𝍷	𝍸		
Other	𝍸𝍷𝍷	𝍸𝍷𝍷		

Model 9

1. Put (✓) to the correct statement and (✗) to the incorrect statement.

a. $\frac{4}{10} + \frac{6}{10} = \frac{10}{20}$ ( )

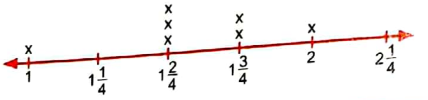
b. $\frac{7}{10}$ is equivalent to 0.70 ( )

c. 1 cm = 0.01 dm ( )

d. If the perimeter of a square is 364 cm , then its side length equals 91 cm ( )

e. $4 - 4 \div 4 + 4 =$ zero ( )

f. The most occurred number in the opposite line plot is $1\frac{2}{4}$ ( )



2. Choose the correct answer.

a. Which type of graphs is suitable for this

Name	Ahmed	Nora	Sally	Aola
Age	13	17	15	10

A. double bar graph.

B. line plot.

C. bar graph.

b. $1{,}836 \div 3$ is closer to ______

A. 6 B. 60 C. 600 D. 6,000

c. A fraction in which the numerator is greater than or equal the denominator called ______

A. proper fraction. B. mixed number.

C. unit fraction. D. improper fraction.

d. $[3 \times 10] - [20 \div 4] =$ ______

A. 35 B. 25 C. zero D. 4

e. Which choice shows the fractions in a descending order ?

A. $\frac{3}{10}$, $\frac{3}{9}$, $\frac{3}{7}$, $\frac{3}{5}$, $\frac{3}{3}$

B. $\frac{3}{5}$, $\frac{3}{7}$, $\frac{3}{9}$, $\frac{3}{10}$, $\frac{3}{3}$

C. $\frac{3}{3}$, $\frac{3}{5}$, $\frac{3}{7}$, $\frac{3}{9}$, $\frac{3}{10}$

D. $\frac{3}{3}$, $\frac{3}{10}$, $\frac{3}{9}$, $\frac{3}{7}$, $\frac{3}{5}$

f. The place value of the digit 3 in the number 2.53 is ______

A. Ones. B. Tens. C. Tenths. D. Hundredths.

3. Complete.

a. The unit form of 4.52 is ____________

b. 5.2 = ____________ hundredths.

c. $\frac{5}{15} = \frac{15}{__}$

d. There are ____________ unit fractions that form seven tenths.

e. ____________ $\div 2 = 5$ R 1

f. $3 \times (5 - 4) - 3 =$ ____________

4. Match.

a.	$\frac{5}{5}$	1.	$\frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10}$
b.	$\frac{15}{50}$	2.	$\frac{9}{9}$
c.	$\frac{4}{10}$	3.	$\frac{3}{7} - \frac{1}{7}$
d.	$\frac{20}{70}$	4.	0.3

5. Compare. Write (< , > or =).

a. 34 tenths ◯ $3\frac{4}{10}$

b. 5 Ones ,5 Hundredths ◯ 55 tenths

c. $\frac{3}{10} + \frac{3}{100}$ ◯ 0.33

d. $5\frac{1}{11}$ ◯ $2\frac{21}{36}$

6. Samir painted $\frac{5}{11}$ of a wall with blue. What is remainder of the wall to be painted ?

7. Calculate.

a. $3{,}240 - 1{,}651 =$ ____________

b. $3 \times 472 =$ ____________

c. $725 \div 9 =$ ____________

d. $7{,}431 + 5{,}132 =$ ____________

8. **Arrange each of the following from least to greatest.**

a. $\frac{5}{10}$, $\frac{1}{6}$, $\frac{8}{9}$

b. $\frac{11}{12}$, $\frac{1}{9}$, $\frac{2}{4}$

9. **Use the following data to make a line plot , then answer the questions.**

11 kg , $12\frac{1}{4}$ kg , $11\frac{3}{4}$ kg , $11\frac{1}{2}$ kg , 12 kg , $11\frac{1}{2}$ kg , $11\frac{1}{4}$ kg , $11\frac{1}{4}$ kg , $11\frac{1}{2}$ kg , 12 kg

a. What is the most common record ?

b. What is the least common record ?

Model 10

1. Complete.

a. $26 \div 4 =$ .... R 2

b. $15 \div 3 + 4 + 1 =$ ....

c. The expanded form of two and fifty hundredths is ....

d. $\frac{9}{\dots} = 1$

e. $7.9 =$ .... tenths.

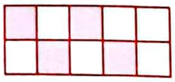
f. $\frac{2}{5} \times \frac{3}{3} =$ ....

---

2. Put (✓) to the correct statement and (X) to the incorrect statement.

a. The type of graph which is suitable for this data is a line plot. ( )

1	3	2	5	1	4
3	2	4	1	3	1
2	1	3	4	1	5

b.  represents four tenths. ( )

c. $2 + 8 \div 2 = 5$ ( )

d. The number, not including the remainder, that results from dividing is called quotient. ( )

e. Fractions that name the same a mount are unit fractions. ( )

f. The place value of the digits 5 in the number 37.56 is 0.5 ( )

---

3. Choose the correct answer.

a. In the number 21.45, which digit is in the tenths place?

A. 2   B. 1   C. 4   D. 5

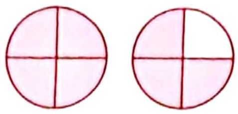
b. $\frac{21}{5} =$ .... (as a mixed number)

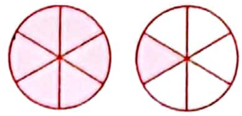
A. $5\frac{1}{4}$ B. $4\frac{1}{5}$ C. $2\frac{1}{5}$ D. $\frac{5}{21}$

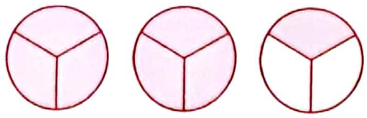
c. Which of the following is not equivalent to $1\frac{10}{100}$?

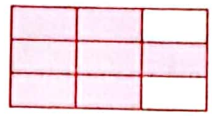
A. 1.1   B. 1.10   C. 1.01   D. $1\frac{1}{10}$

d. The correct model which represents the improper fraction $\frac{7}{6}$ is

A. 

B. 

C. 

D. 

e. Which of the following sentences is wrong ?

A. $\frac{1}{3} > \frac{1}{4}$ B. $\frac{1}{4} > \frac{1}{5}$ C. $\frac{1}{5} < \frac{1}{6}$ D. $\frac{1}{8} < \frac{1}{7}$

f. Which of the following can not be represented by a line plot ?

A. The number of family members.
B. Distance between home and school.
C. Our shoe sizes.
D. Our favorite activity in our spare time.

4. Compare, write (< , = or >).

a. $\frac{5}{7}$ ◯ $\frac{5}{11}$

b. $3 + 3 \times 3 - 3$ ◯ $5 + 3 \times 3 - 5$

c. $7 \times \frac{1}{10}$ ◯ $\frac{7}{70}$

d. $3 + 0.2 + 0.01$ ◯ $3 + 0.1 + 0.02$

5. Join.

a. $2\frac{1}{5} + 1\frac{4}{5}$ b. $1 - \frac{3}{5}$ c. $\frac{2}{10} + \frac{2}{100}$ d. $3 \times \frac{1}{5}$

1. $\frac{3}{5}$ 2. $\frac{22}{100}$ 3. 4 4. $\frac{2}{5}$

6. Find the Area of a rectangle with 15 m. long and 11 m. wide.

---

7. Pola was training for the race , on Monday he ran for $\frac{7}{10}$ km. , on Tuesday he ran for $\frac{25}{100}$ km. What is the total distance did he run in all ?

---

8. **Use place value chart to compare :**

a. 0.80 ________ 0.09

Ones	decimal point	Tenths	Hundredths
	•		
	•		

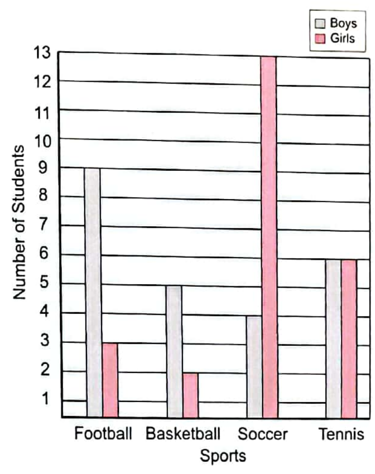
b. 0.10 ________ 0.1

Ones	decimal point	Tenths	Hundredths
	•		
	•		

---

9. **Ahmed took a survey of his classmates to find their favorite sports. He recorded the data in a double bar graph. Use Ahmed's data to complete the table.**

Favorite sports		
Sport	Boys	Girls
Football		
Basketball		
Soccer		
Tennis		



Use the graph to answer the questions.

a. How many more boys than girls chose basketball ?

b. How many students liked football the most ?

c. For which sport is there the greatest difference between boys and girls ?

d. Which is the least popular sport ?

Answers of unit 7

Multiplication and Division : Computation and Relationships

» **Concept 2 :** Dividing by 1-Digit Divisors

Concept 2 — Dividing by 1-Digit Divisors

Exercise 1

1.

	Problem	Quotient	Remainder	Model
a.	15 ÷ 6	2	3	
b.	5 ÷ 4	1	1	
c.	38 ÷ 5	7	3	
d.	22 ÷ 7	3	1	
e.	26 ÷ 3	8	2	
f.	17 ÷ 9	1	8	

2.

a. 3 R 2   b. 3 R 1

c. 6 R 2   d. 6 R 3

e. 2 R 2   f. 2 R 2

3.

a. 5 R 3   b. 2 R 4

c. 7 R 2   d. 3 R 4

e. 5 R 2   f. 8 R 1

g. 5 R 1   h. 10 R 3

i. 5 R 5

4.

a. 20 ÷ 7 = 2 R 6   b. (18 ÷ 9 = 2 R 0)

c. 31 ÷ 8 = 3 R 7   d. (72 ÷ 9 = 8 R 0)

e. 51 ÷ 5 = 10 R 1   f. (22 ÷ 2 = 11 R 0)

g. 44 ÷ 6 = 7 R 2   h. (24 ÷ 3 = 8 R 0)

i. 65 ÷ 10 = 6 R 5

5.

a. ✔   b. ✔   c. ✘

d. ✔   e. ✔   f. ✘

6.

a. 15 ÷ 4 = 3 R 3

Each friend will take 3 pies and 3 extra pies will be left.

b. 19 ÷ 9 = 2 R 1

Each friend will take 2 biscuits and 1 biscuit is left over

c. 42 ÷ 8 = 5 R 2

6 boxes of crayons are needed.

d. 48 ÷ 5 = 9 R 3

10 boxes will be needed , 9 boxes will be filled with mugs and 1 more box for the 3 extra mugs.

e. 40 students will need one bus and the 20 extra students will need another bus.

So , 2 buses are needed.

f.

Form of transportation	How many people can fit on each ?	Equation
Microbus	9	32 ÷ 9 = 3 R 5
Motorbike	2	32 ÷ 2 = 16
Car	4	32 ÷ 4 = 8
Van	7	32 ÷ 7 = 4 R 4

Possible answers :

- The group should take microbuses because they would need fewer vehicles.
- The group should take cars because no one is left over.

7.

$(4 \times 9) + 3 = 36 + 3 = 39$

Ahmed had at the start 39 photos.

Answers of multiple choice questions

1. D **2.** C **3.** C **4.** B
5. C **6.** D **7.** C **8.** C
9. C **10.** B **11.** C **12.** D
13. A **14.** C

Exercise 2

1.

a. 3, 30, 300, 3,000
b. 6, 60, 600, 6,000
c. 7, 70, 700, 7,000
d. 1, 10, 100, 1,000
e. 4, 40, 400, 4,000
f. 7, 70, 700, 7,000

2.

Equation	Basic (Related) Fact	Quotient
$600 \div 3$	$6 \div 3 = 2$	200
$150 \div 5$	$15 \div 5 = 3$	30
$1{,}200 \div 6$	$12 \div 6 = 2$	200
$200 \div 4$	$20 \div 4 = 5$	50
$700 \div 7$	$7 \div 7 = 1$	100
$6{,}400 \div 8$	$64 \div 8 = 8$	800
$4{,}500 \div 9$	$45 \div 9 = 5$	500
$270 \div 3$	$27 \div 3 = 9$	90

3.

a. 4 ones ÷ 2 = 2 ones
$4 \div 2 = 2$
4 tens ÷ 2 = 2 tens
$40 \div 2 = 20$
4 hundreds ÷ 2 = 2 hundreds
$400 \div 2 = 200$
4 thousands ÷ 2 = 2 thousands
$4{,}000 \div 2 = 2{,}000$

b. 3 ones ÷ 3 = 1 one
$3 \div 3 = 1$
3 tens ÷ 3 = 1 ten
$30 \div 3 = 10$
3 hundreds ÷ 3 = 1 hundred
$300 \div 3 = 100$
3 thousands ÷ 3 = 1 thousand
$3{,}000 \div 3 = 1{,}000$

c. 24 ones ÷ 8 = 3 ones
$24 \div 8 = 3$
24 tens ÷ 8 = 3 tens
$240 \div 8 = 30$
24 hundreds ÷ 8 = 3 hundreds
$2{,}400 \div 8 = 300$
24 thousands ÷ 8 = 3 thousands
$24{,}000 \div 8 = 3{,}000$

d. 42 ones ÷ 6 = 7 ones
$42 \div 6 = 7$
42 tens ÷ 6 = 7 tens
$420 \div 6 = 70$
42 hundreds ÷ 6 = 7 hundreds
$4{,}200 \div 6 = 700$
42 thousands ÷ 6 = 7 thousands
$42{,}000 \div 6 = 7{,}000$

4.

a. 9 b. 6 c. 20
d. 90 e. 90 f. 90
g. 600 h. 700 i. 800
j. 800 k. 800 l. 300
m. 5,000 n. 9,000 o. 6,000

5.

a. 3 b. 6 c. 7
d. 7 e. 90 f. 2,800
g. 2 h. 8 i. 9
j. 81,000 k. 24,000 l. 9,000
m. 25,000 n. 48,000 o. 42,000

6.

a. $60 \div 3 = 20$
Each period will be 20 minutes long

b. $180 \div 9 = 20$
It will take him 20 days

c. $540 \div 9 = 60$
The students will need 60 boxes

d. $3{,}000 \div 5 = 600$
600 students donated

e. $8{,}100 \div 90 = 90$
They will need 90 cars
So , they can not all take the same metro.

f. $54{,}000 \div 9 = 6{,}000$
The factory produced 6,000 pieces per month.

7.

$450 \div 50 = 9$

There are 9 flowers in each row.

Answers of multiple choice questions

1. B **2.** B **3.** B **4.** D
5. C **6.** C **7.** D **8.** A
9. A **10.** C **11.** A **12.** C
13. B **14.** B

Exercise 3

1.

a. $64 \div 2$

2	$2 \times 30 = 60$	$2 \times 2 = 4$
	30	2

$60 + 4 = 64$ R 0

$30 + 2 = 32$

So, $64 \div 2 = 32$

b. $85 \div 4$

4	$4 \times 20 = 80$	$4 \times 1 = 4$	R 1
	20	1	

$80 + 4 + 1 = 85$

$20 + 1$ R 1 $= 21$ R 1

So, $85 \div 4 = 21$ R 1

c. $217 \div 5$

5	$5 \times 40 = 200$	$5 \times 3 = 15$	R 2
	40	3	

$200 + 15 + 2 = 217$

$40 + 3$ R 2 $= 43$ R 2

So, $217 \div 5 = 43$ R 2

d. $159 \div 3$

3	$3 \times 50 = 150$	$3 \times 3 = 9$
	50	3

$150 + 9 = 159$ R 0

$50 + 3 = 53$

So, $159 \div 3 = 53$ R 0

e. $636 \div 6$

6	$6 \times 100 = 600$	$6 \times 6 = 36$
	100	6

$600 + 36 = 636$ R 0

$100 + 6 = 106$

So, $636 \div 6 = 106$ R 0

f. $484 \div 8$

8	$8 \times 60 = 480$	R 4
	60	

So, $484 \div 8 = 60$ R 4

2.

a. $48 \div 4$

4	$4 \times 10 = 40$	$4 \times 2 = 8$
	10	2

$40 + 8 = 48$ R 0

$10 + 2 = 12$

So, $48 \div 4 = 12$ R 0

b. $67 \div 3$

3	$3 \times 20 = 60$	$3 \times 2 = 6$	R1
	20	2	

$60 + 6 + 1 = 67$

$20 + 2$ R 1 $= 22$ R 1

So, $67 \div 3 = 22$ R 1

c. $613 \div 3$

3	$3 \times 200 = 600$	$3 \times 4 = 12$	R1
	200	4	

$600 + 12 + 1 = 613$

$200 + 4$ R 1 $= 204$ R 1

So, $613 \div 3 = 204$ R 1

d. $810 \div 9$

9	$9 \times 90 = 810$
	90

So, $810 \div 9 = 90$ R 0

e. $742 \div 7$

7	$7 \times 100 = 700$	$7 \times 6 = 42$
	100	6

$700 + 42 = 742$ R 0

$100 + 6 = 106$

So, $742 \div 7 = 106$ R 0

f. $248 \div 6$

6	$6 \times 40 = 240$	$6 \times 1 = 6$	R 4
	40	1	

$240 + 6 + 2 = 248$

$40 + 1$ R 2 $= 41$ R 2

So, $248 \div 6 = 41$ R 2

g. $455 \div 4$

4	$4 \times 100 = 400$	$4 \times 13 = 52$	R 3
	100	13	

$400 + 52 + 3 = 455$

$100 + 13$ R 3 $= 113$ R 3

So, $455 \div 4 = 113$ R 3

h. $535 \div 5$

5	$5 \times 100 = 500$	$5 \times 7 = 35$
	100	7

$500 + 35 = 535$ R 0

$100 + 7 = 107$

So, $535 \div 5 = 107$ R 0

i. $3{,}200 \div 8$

8	$8 \times 400 = 3{,}200$
	400

So, $3{,}200 \div 8 = 400$

j. $4{,}500 \div 9$

9	$9 \times 500 = 4{,}500$
	500

So, $4{,}500 \div 9 = 500$

3.

a. $63 \div 3$

3	$3 \times 20 = 60$	$3 \times 1 = 3$
	20	1

$60 + 3 = 63$ R 0

$20 + 1 = 21$

So, the share of each group is 21 muffines.

b. $89 \div 6$

6	$6 \times 10 = 60$	$6 \times 4 = 24$	R 5
	10	4	

$60 + 24 + 5 = 89$

$10 + 4$ R 5 $= 14$ R 5

Each classroom will get 14 books and 5 books are left over.

c. $545 \div 5$

5	$5 \times 100 = 500$	$5 \times 9 = 45$
	100	9

$500 + 45 = 545$ R 0

$100 + 9 = 109$

She worked 109 days.

d. $864 \div 4$

4	$4 \times 200 = 800$	$4 \times 16 = 64$
	200	16

$800 + 64 = 864$ R 0

$200 + 16 = 216$

Each classroom will get 216 pencils.

e. $868 \div 8$

8	$8 \times 100 = 800$	$8 \times 8 = 64$	R 4
	100	8	

$800 + 64 + 4 = 868$

$100 + 8$ R 4 $= 108$ R 4

108 coins will be in each jar and
4 coins are left over.

f. $672 \div 6$

6	$6 \times 100 = 600$	$6 \times 12 = 72$
	100	12

$600 + 72 = 672$ R 0

$100 + 12 = 112$

The cost of 1 lunch is 112 pounds

g. $92 \div 4$

$4 \times 20 = 80$	$4 \times 3 = 12$
20	3

$80 + 12 = 92$ R 0

$20 + 3 = 23$

Each friend will get 23 stickers

h. $400 \div 4$

4	$4 \times 100 = 400$	$4 \times 23 = 92$
	100	23

$400 + 92 = 492$ R 0

$100 + 23 = 123$

So , $492 \div 4 = 123$ R 0

4.

a. B , 23 R 2

b. $752 \div 6$

6	$6 \times 120 = 720$	$6 \times 5 = 30$	R 2
	120	30	

$720 + 30 + 2 = 752$

$120 + 5$ R 2 $= 125$ R 2

So , $752 \div 6 = 125$ R 2

Answers of multiple choice questions

1. D 2. C 3. B 4. B
5. C 6. C

Exercise 4

1.

a.

4	72	15
−	60	
	12	3
−	12	
	0	

$72 \div 4 = 15 + 3 = 18$

b.

4	517	100
−	400	
	117	25
−	100	
	17	4
−	16	
	1	

$517 \div 4 = 100 + 25 + 4 = 129$

and the remainder is 1

c.

6	244	40
−	240	
	4	

$244 \div 6 = 40$ and the remainder is 4

d.

5	780	100
−	500	
	280	40
−	200	
	80	10
−	50	
	30	6
−	30	
	0	

$780 \div 5 = 100 + 40 + 10 + 6 = 156$

e.

4	897	200
−	800	
	97	20
−	80	
	17	4
−	16	
	1	

$897 \div 4 = 200 + 20 + 4 = 224$

and the remainder is 1

f.

7	376	50
−	350	
	26	3
−	21	
	5	

$376 \div 7 = 50 + 3 = 53$

and the remainder is 5

g.

5	590	100
−	500	
	90	10
−	50	
	40	8
−	40	
	0	

$590 \div 5 = 100 + 10 + 8 = 118$

h.

4	892	200
−	800	
	92	20
−	80	
	12	3
−	12	
	0	

$892 \div 4 = 200 + 20 + 3 = 223$

i.

6	925	100
−	600	
	325	50
−	300	
	25	4
−	24	
	1	

925 ÷ 6 = 100 + 50 + 4 = 154

and the remainder is 1

j.

3	1,216	400
−	1,200	
	16	5
−	15	
	1	

1,216 ÷ 3 = 400 + 5 = 405

and the remainder is 1

k.

8	3,784	400
−	3,200	
	584	70
−	560	
	24	3
−	24	
	0	

3,784 ÷ 8 = 400 + 70 + 3 = 473

l.

5	7,830	1,000
−	5,000	
	2,830	400
−	2,000	
	830	100
−	500	
	330	60
−	300	
	30	6
−	30	
	0	

7,830 ÷ 5 = 1,000 + 400 + 100 + 60 + 6 = 1,566

2.

a. 72 ÷ 3

The dividend 72 is between 60 and 90 , then 60 ÷ 3 = **20** , 90 ÷ 3 = **30**

, then the quotient is between **20** and **30**

b. 524 ÷ 4

The dividend 524 is between 400 and 800 , then 400 ÷ **4** = **100** , 800 ÷ **4** = **200**

, then the quotient is between 100 and **200**

c. 735 ÷ 2

The dividend 735 is between **600** and **800** , then **600** ÷ 2 = **300** , **800** ÷ 2 = **400**

, then the quotient is between **300** and **400**

d. 7,462 ÷ 5

The dividend 7,462 is between **5,000 and 10,000**

, then **5,000** ÷ **5** = **1,000** , **10,000** ÷ **5** = **2,000**

, then the quotient is between **1,000 and 2,000**

3.

a. The dividend 632 is between 400 and 800 , then 400 ÷ 8 = 50 , 800 ÷ 8 = 100
The quotient is between 50 and 100

b. The dividend 312 is between 200 and 400 , then 200 ÷ 4 = 50 , 400 ÷ 4 = 100
The quotient is between 50 and 100

c. The dividend 762 is between 450 and 900 , then 450 ÷ 9 = 50 , 900 ÷ 9 = 100
The quotient is between 50 and 100

d. The dividend 495 is between 300 and 600 , then 300 ÷ 6 = 50 , 600 ÷ 6 = 100
The quotient is between 50 and 100

e. The dividend 536 is between 400 and 800 , then 400 ÷ 8 = 50 , 800 ÷ 8 = 100
The quotient is between 50 and 100

f. The dividend 3,748 is between 2,000 and 4,000 , then 2,000 ÷ 2 = 1,000 , 4,000 ÷ 2 = 2,000
The quotient is between 1,000 and 2,000

g. The dividend 4,681 is between 3,000 and 6,000 , then 3,000 ÷ 3 = 1,000 , 6,000 ÷ 3 = 2,000
The quotient is between 1,000 and 2,000

h. The dividend 8,642 is between 5,000 and 10,000 , then 5,000 ÷ 5 = 1,000 , 10,000 ÷ 5 = 2,000
The quotient is between 1,000 and 2,000

4.

a.

	18
3	54
−	3
	24
−	24
	0

b.

	21 R 1
4	85
−	8
	05
−	4
	1

c.

	11 R 3
5	58
−	5
	08
−	5
	3

d.

	13 R 2
3	41
−	3
	11
−	9
	2

5.

a.
151
3) 454
− 3
15
− 15
04
− 3
1

, then 454 ÷ 3 = 151 R 1

b.
032
6) 192
− 18
12
− 12
0

, then 192 ÷ 6 = 32

c.
389
2) 778
− 6
17
− 16
18
− 18
0

, then 778 ÷ 2 = 389

d.
040
6) 240
− 24
0

, then 240 ÷ 6 = 40

e.
103
4) 414
− 4
01
− 0
14
− 12
2

, then 414 ÷ 4 = 103 R 2

f.
126
6) 761
− 6
16
− 12
41
− 36
5

, then 761 ÷ 6 = 126 R 5

g.
122
3) 368
− 3
06
− 6
08
− 6
2

, then 368 ÷ 3 = 122 R 2

h.
0326
4) 1,304
− 12
10
− 8
24
− 24
0

, then 1,304 ÷ 4 = 326

i.
1,214
4) 4,858
− 4
08
− 8
05
− 4
18
− 16
2

, then 4,858 ÷ 4 = 1,214 R 2

j.
0730
5) 3,650
− 35
15
− 15
0

, then 3,650 ÷ 5 = 730

k.
0300
5) 1,500
− 1,5
0

, then 1,500 ÷ 5 = 300

l.
1,153
5) 5,765
− 5
07
− 5
26
− 25
15
− 15
0

, then 5,765 ÷ 5 = 1,153

m.

0362
7 | 2,534
− 21
43
− 42
14
− 14
0

, then 2,534 ÷ 7 = 362

n.

0365
8 | 2,920
− 24
52
− 48
40
− 40
0

, then 2,920 ÷ 8 = 365

o.

0365
9 | 3,287
− 27
58
− 54
47
− 45
2

, then 3,287 ÷ 9 = 365 R 2

6.

The number of sandwiches = 52 ÷ 4
= 13 sandwiches

13
4 | 52
− 4
12
− 12
0

7. First strategy

7 | 784
− 700 (100)
84
− 70 (10)
14
− 14 (2)
0

Second strategy

112
7 | 784
− 7
08
− 7
14
− 14
0

, then 784 ÷ 7 = 100 + 10 + 2 = 112

8.

The number of pods
= 87 ÷ 3 = 29 pods

29
3 | 87
− 6
27
− 27
0

9.

The number of groups
= 154 ÷ 7
= 22 groups

022
7 | 154
− 14
14
− 14
0

10.

The distance
= 376 ÷ 4
= 94 km

094
4 | 376
− 36
16
− 16
0

11.

Sami has = 960 ÷ 8
= 120 beads

120
8 | 960
− 8
16
− 16
0

12.

59

Answers of multiple choice questions

1. B 2. C 3. A 4. C
5. B 6. C 7. C 8. C

Exercise 5

1.

a. 288 ÷ 6 = 48
b. 300 ÷ 4 = 75
c. 1,296 ÷ 8 = 162
d. 5,535 ÷ 9 = 615

2.

a. 318 ÷ 6 = 53 b. 1,869 ÷ 3 = 623
c. 1,300 ÷ 4 = 325 d. 2,525 ÷ 5 = 505
e. 42 × 7 = 294
294 ÷ 7 = 42
f. 93 × 9 = 837
837 ÷ 9 = 93
g. 173 × 6 = 1,038
1,038 ÷ 6 = 173
h. 349 × 8 = 2,792
2,792 ÷ 8 = 349

3.

a. 214 ÷ 2

The quotient is between 100 and 150

Solution : 107

107
2 | 214
− 2
01
− 0
14
− 14
0

b. 834 ÷ 3

The quotient is between 200 and 300

Solution : 278

278
3 | 834
− 6
23
− 21
24
− 24
0

c. 346 ÷ 5

The quotient is between 60 and 80

Solution : 69 R 1

069
5 | 346
− 30
46
− 45
1

d. 562 ÷ 8

The quotient is between 50 and 100

Solution : 70 R 2

070
8 | 562
− 56
02
− 0
2

e. 1,266 ÷ 6

The quotient is between 200 and 300

Solution : 211

0211
6 | 1,266
− 12
06
− 6
06
− 6
0

f. 1,632 ÷ 4

The quotient is between 400 and 500

Solution : 408

0408
4 | 1,632
− 16
03
− 0
32
− 32
0

g. 1,429 ÷ 7

The quotient is between 200 and 300

Solution : 204 R 1

0204
7 | 1,429
− 14
02
− 0
29
28
1

h. 4,590 ÷ 3

The quotient is between 1,500 and 1,600

Solution : 1,530

1,530
3 | 4,590
− 3
15
− 15
09
9
0

4.

a.

039
4 | 156
− 12
36
− 36
0

, then 159 ÷ 4 = 39

b.

073
3 | 219
− 21
09
− 9
0

, then 219 ÷ 3 = 73

c.

05
5 | 27
− 25
2

, then 27 ÷ 5 = 5 R 2

d.

097
6 | 583
− 54
43
− 42
1

, then 583 ÷ 6 = 97 R 1

e.

0309
5 | 1,545
− 15
04
− 0
45
− 45
0

, then 1,545 ÷ 5 = 309

f.

0901
3 | 2,704
− 27
00
− 0
04
− 3
1

, then 2,704 ÷ 3 = 901 R 1

g.

1,631
4 | 6,524
− 4
25
− 24
12
− 12
04
− 4
0

, then 6,524 ÷ 4 = 1,631

h.

```
     1,005
3 ⟌ 3,017
  −  3
     00
  −   0
      01
  −    0
      17
  −   15
       2
```

, then $3{,}017 \div 3 = 1{,}005$ R 2

i.

```
     089
6 ⟌ 534
  −  48
     54
  −  54
      0
```

, then $534 \div 6 = 89$

j.

```
     0953
9 ⟌ 8,579
  −  81
     47
  −  45
     29
  −  27
      2
```

, then $8{,}579 \div 9 = 953$ R 2

5.

a. Number of paints $= 21 \div 3 = 7$ paints

b. Number of toys $= 352 \div 8 = 44$ toys

c. Number of plants $= 35 + 16 + 9$

$= 60$ plants

Number of plants in each row

$= 60 \div 6 = 10$ plants

d. Ahmed sold $= 19 + 27 + 153$

$= 199$ cones

e. Kamal has $= 4 \times 347 = 1{,}388$ marbles

Hala has $= 1{,}388 - 799$

$= 589$ marbles

f. What Saleem collected

$= 6 \times 14 = 84$ kilograms

Number of bags $= 84 \div 7 = 12$ bags

g. Number of crayons $= [7 \times 9] + [5 \times 10]$

$= 63 + 50$

$= 113$ crayons

1. C **2.** C **3.** C **4.** A
5. C **6.** A **7.** C **8.** D
9. C **10.** D

Unit 7 Assessments

Model 1

1.
a. C b. C c. B

2.
a. 1006 R 1 b. 5,600
c. $7 \div 2$, $16 \div 2$, 38

3.
a. ✗ b. ✗ c. ✓

4.
a. ⟶ 3 b. ⟶ 5
c. ⟶ 1 d. ⟶ 2
e. ⟶ 4

5.
Number of passengers in each carriage $= 896 \div 8 = 112$ passengers.

Model 2

1.
a. B b. A c. C

2.
a. 964 b. 100
c. $128 \div 5$

3.
a. ✓ b. ✗ c. ✓

4.
a. ⟶ 4 b. ⟶ 5
c. ⟶ 1 d. ⟶ 3
e. ⟶ 2

5.
The distance $= 4{,}488 \div 6$
$= 748$ meters.

Answers of unit 8

Order of Operations

» **Concept 1 :** Order of Operations

Concept 1 — Order of Operations

Exercise 6

1.

a. 548
b. 8,775
c. 1,116
d. 113
e. 2,261
f. 2,360
g. 90 R 5
h. 8,384
i. 5,110
j. 534
k. 510
l. 143
m. 257
n. 2,527
o. 8,634
p. 3,501
q. 8,873
r. 351
s. 325
t. 1,589

2.

a. ✓
b. ✗
c. ✓
d. ✓
e. ✗
f. ✓

3.

a. 5,556
b. 1,375
c. 762
d. 9,655
e. 210 R 2
f. 2,940
g. 7,611
h. 38 R 2
i. 5,964
j. 4,445
k. 880
l. 581
m. 528
n. 555
o. 1,110
p. 1,240
q. 834
r. 528
s. 658
t. 692

(Estimate by yourself)

Answers of multiple choice questions

1. D 2. C 3. A 4. C
5. D 6. C 7. B 8. C
9. B 10. B

Exercise 7

1.

a. add , multiply
b. correct
c. correct
d. divide , subtract
e. correct
f. subtract , divide , add

2.

a. $16 + 13 = 29$
b. $30 - 12 = 18$
c. $200 - 160 = 40$
d. $5 + 4 = 9$
e. $4 + 5 = 9$
f. $10 - 7 = 3$
g. $5 + 25 = 30$
h. $24 \div 3 = 8$
i. $81 + 9 = 90$
j. $12 \times 4 = 48$

3.

a. $36 + 8 - 3 = 44 - 3 = 41$
b. $73 - 60 + 5 = 13 + 5 = 18$
c. $4 + 4 + 50 = 8 + 50 = 58$
d. $9 + 5 + 5 = 14 + 5 = 19$
e. $30 + 15 \div 5 = 30 + 3 = 33$
f. $89 + 2 - 12 = 91 - 12 = 79$
g. $30 + 2 \times 2 = 30 + 4 = 34$
h. $36 - 12 \div 4 = 36 - 3 = 33$
i. $6 + 32 \div 8 = 6 + 4 = 10$

4.

a. ✔ b. ✘ c. ✘
d. ✔ e. ✔ f. ✘

5.

8	11
15 ÷ 5 + 4 + 1	49 − 7 × 6 + 4
36 ÷ 9 + 4	80 ÷ 10 + 6 − 3
12 − 72 ÷ 12 + 2	
16	**28**
15 − 7 + 2 + 6	24 − 8 ÷ 4 + 6
99 − 10 × 9 + 7	8 × 2 + 24 − 12
32	**other**
8 × 3 + 6 + 2	2 + 4 × 6
	48 ÷ 4 + 9
	7 + 70 ÷ 10 − 2
	24 × 36 ÷ 6 + 2
	40 − 7 × 5 + 2

6.

a. 6 + 2 × 5 = 16 b. 18 − 12 ÷ 4 = 15
c. 8 × 7 − 9 = 47

7.

a. 24 − 4 = 20 b. 100 − 80 = 20
c. (80 − 50 = 30) d. 20

8.

The first problem has no parentheses
So , we divide , then add
the second problem has parentheses
So , we add , then divide
8 + 6 ÷ 2 = 8 + 3 = 11
, (8 + 6) ÷ 2 = 14 ÷ 2 = 7

9.

74 − 61 + 8 × 5 = 74 − 61 + 40
= 13 + 40 = 53

Sarah is correct

Seleem should follow the order multiply , subtract , add

10.

a. 320 , 5 × 67 − 15

b. 614 , 568 + 78 − 8 × 4

11.

a. The share of each friend
= (246 − 25) ÷ 6 = 221 ÷ 6
= 36 stamps
and the remainder is 5 stamps

b. She walked = 14 × 14 + 56
= 196 + 56
= 252 kilometers

c. Ashraf takes = (27 + 12) × 5
= 39 × 5 = 195 minutes

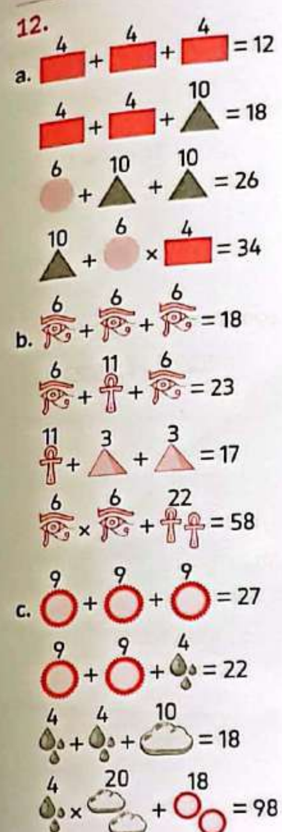
d. The microbuses needed
= (172 + 8) ÷ 9 = 180 ÷ 9
= 20 microbuses

e. Number of muffins
= (198 − 17) ÷ 6 = 181 ÷ 6
= 30 muffins
and 1 berry is remainder

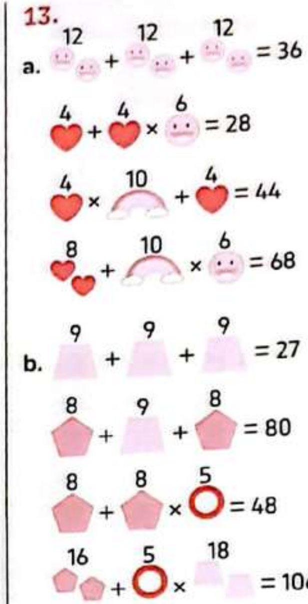
f. Number of microbuses
= (194 − 43) ÷ 9 = 151 ÷ 9 = 16 R 7
So , the number of microbuses is 17

g. Each friend can take
= (6 × 18) ÷ 8 = 108 ÷ 8 = 13 balloons
and the remainder is 4 balloons

12.



13.



14.

Write by yourself.

Answers of multiple choice questions

1.	D	2.	D	3.	C	4.	A
5.	C	6.	C	7.	D	8.	C
9.	D	10.	D				

Unit 8 Assessments

Model 1

1.

a. C b. B c. D

2.

a. 22 b. 23 c. 548

3.

a. ✗ b. ✓ c. ✓

4.

a. ⟶ 2 b. ⟶ 1

c. ⟶ 5 d. ⟶ 3

e. ⟶ 4

5.

a. $67 + 3 - 20 = 70 - 20 = 50$

b. $7 + 6 \div 2 = 7 + 3 = 10$

Model 2

1.

a. D b. C c. B

2.

a. 9 b. 11 c. 113

3.

a. ✓ b. ✗ c. ✗

4.

a. ⟶ 3 b. ⟶ 1

c. ⟶ 5 d. ⟶ 2

e. ⟶ 4

5.

a. $5{,}236 + 2{,}999 = 5{,}236 + 3{,}000 - 1$

$= 8{,}236 - 1 = 8{,}235$

b.

$$\begin{array}{rr} & \overset{1}{\cancel{2}} \\ & 15 \\ \times & 24 \\ \hline & 60 \\ + & 300 \\ \hline & 360 \end{array}$$

Answers of unit 9

Fractions

» **Concept 1 :** Composing and decomposing fractions

» **Concept 2 :** Comparing fractions

» **Concept 3 :** Multiplication and fractions

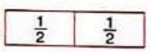
Concept 1

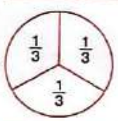
Composing and Decomposing Fractions

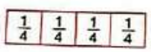
Exercise 8

1.
a. 2 , 1 , half , $\frac{1}{2}$
b. 3 , 1 , third , $\frac{1}{3}$
c. 4 , 1 , quarter or fourth , $\frac{1}{4}$
d. 5 , 1 , fifth , $\frac{1}{5}$
e. 6 , 1 , sixth , $\frac{1}{6}$
f. 8 , 1 , eighth , $\frac{1}{8}$

2.
a. a number that names a part of a whole or part of a group.
b. the number above the bar in a fraction that tells how many equal parts have been counted.
c. The number below the bar in a fraction that tells how many equal parts there are.
d. a fraction has a numerator of 1
e. a fraction its numerator is less than its denominator.

3.
a. 

b. 

c. 

4.
a. 3 b. 6 c. 4
d. 5 e. 3 f. 7

5.
a. $\frac{3}{4}$
$\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$

b. $\frac{2}{3}$
$\frac{2}{3} = \frac{1}{3} + \frac{1}{3}$

c. $\frac{7}{10}$
$\frac{7}{10} = \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10}$

d. $\frac{6}{8}$
$\frac{6}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$

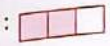
e. $\frac{8}{16}$
$\frac{8}{16} = \frac{1}{16} + \frac{1}{16} + \frac{1}{16} + \frac{1}{16} + \frac{1}{16} + \frac{1}{16}$
$+ \frac{1}{16} + \frac{1}{16}$

f. $\frac{5}{8}$
$\frac{5}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$

6.
a. Fraction : $\frac{2}{4}$
Unit fraction : $\frac{1}{4}$
Equation : $\frac{1}{4} + \frac{1}{4}$

b. Model :
Unit fraction : $\frac{1}{6}$
Equation : $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$

c. Fraction : $\frac{3}{8}$
Equation : $\frac{1}{8} + \frac{1}{8} + \frac{1}{8}$

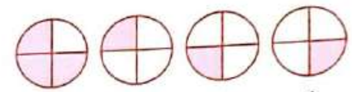
d. Model : 
Fraction : $\frac{2}{3}$
Unit fraction : $\frac{1}{3}$

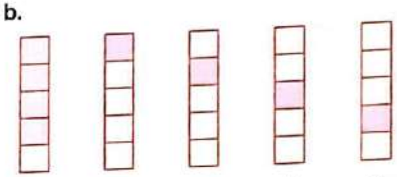
7. a. 5 b. 2 c. 3 d. 2

8.
a. $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$
b. $\frac{1}{3} + \frac{1}{3} + \frac{1}{3}$
c. $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$
d. $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$

9.
a. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$
b. $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$
c. $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$
d. $\frac{1}{8} + \frac{1}{8} + \frac{1}{8}$
e. $\frac{1}{6} + \frac{1}{6}$
f. $\frac{1}{10} + \frac{1}{10} + \frac{1}{10}$

10.
a. $\frac{3}{5} = \frac{1}{5} + \frac{2}{5}$, $\frac{3}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$
b. $\frac{7}{8} = \frac{2}{8} + \frac{5}{8}$, $\frac{7}{8} = \frac{1}{8} + \frac{2}{8} + \frac{4}{8}$
c. $\frac{5}{6} = \frac{2}{6} + \frac{3}{6}$, $\frac{5}{6} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$
d. $\frac{4}{9} = \frac{2}{9} + \frac{2}{9}$, $\frac{4}{9} = \frac{1}{9} + \frac{1}{9} + \frac{2}{9}$
e. $\frac{4}{7} = \frac{1}{7} + \frac{3}{7}$, $\frac{4}{7} = \frac{2}{7} + \frac{2}{7}$
f. $\frac{5}{8} = \frac{1}{8} + \frac{2}{8} + \frac{2}{8}$, $\frac{5}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$
$+ \frac{1}{8} + \frac{1}{8}$
g. $\frac{6}{10} = \frac{3}{10} + \frac{3}{10}$, $\frac{6}{10} = \frac{1}{10} + \frac{5}{10}$
(Answers may vary)

11.
a. 
$\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$

b. 
$\frac{4}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$

12.
a. $\frac{9}{12} = \frac{1}{12} + \frac{1}{12} + \frac{1}{12} + \frac{1}{12} + \frac{1}{12} + \frac{1}{12}$
$+ \frac{1}{12} + \frac{1}{12} + \frac{1}{12}$
, $\frac{9}{12} = \frac{4}{12} + \frac{5}{12}$
, $\frac{9}{12} = \frac{3}{12} + \frac{3}{12} + \frac{3}{12}$

b. $\frac{12}{15} = \frac{7}{15} + \frac{5}{15}$
, $\frac{12}{15} = \frac{2}{15} + \frac{5}{15} + \frac{5}{15}$
, $\frac{12}{15} = \frac{10}{15} + \frac{2}{15}$

c. $\frac{7}{8}$

, $\frac{7}{8} = \frac{6}{8} + \frac{1}{8}$

, $\frac{7}{8} = \frac{2}{8} + \frac{1}{8} + \frac{4}{8}$

d. $\frac{6}{10}$

, $\frac{6}{10} = \frac{5}{10} + \frac{1}{10}$

, $\frac{6}{10} = \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{3}{10}$

(Answers may vary)

13.

a. ⟶ 2

b. ⟶ 1

c. ⟶ 5

d. ⟶ 3

e. ⟶ 4

14. a. ✗ b. ✓ c. ✗ d. ✓

e. ✗ f. ✓ g. ✓

15. a. $\frac{2}{3}$ b. $\frac{3}{4}$

c. $\frac{5}{9}$ d. $\frac{4}{10}$

e. 5 f. 3

g. 1 h. $\frac{2}{7}$

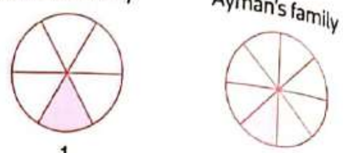
i. $\frac{3}{5}$ j. $\frac{1}{3} + \frac{1}{3}$

k. $\frac{1}{7} + \frac{1}{7} + \frac{1}{7}$ l. $\frac{1}{2} + \frac{1}{2}$

m. $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$

16.

Eman's family Ayman's family



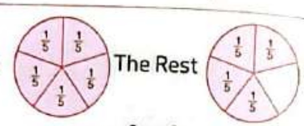
$\frac{1}{6}$ > $\frac{1}{8}$

Eman's family will get bigger pieces.

17. $\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$

He will need 3 times of the cup to complete the recipe.

18.



$\frac{4}{5}$

First way = $\frac{2}{5} + \frac{2}{5}$

Second way = $\frac{1}{5} + \frac{3}{5}$

19. $\frac{4}{10} + \frac{7}{10} + \frac{1}{10} = \frac{12}{10}$

$\frac{2}{10} + \frac{5}{10} + \frac{5}{10} = \frac{12}{10}$

Then , Ahmed is true.

20. $\frac{1}{1}$ is a unit fraction because its numerator is 1 but it isn't a proper fraction because its numerator not less than its denominator.

Answers of multiple choice questions

1. B	2. C	3. B
4. B	5. A	6. C
7. C	8. D	9. C
10. B	11. A	12. A
13. B		

Exercise 9

1. a. A proper fraction

b. An improper fraction

c. An improper fraction

d. A proper fraction

e. A mixed number

f. A mixed number

2. a. An improper fraction

b. A mixed number

c. A proper fraction

3. a. $2\frac{2}{6}$ b. $1\frac{1}{3}$ c. $3\frac{4}{6}$ d. $2\frac{1}{4}$

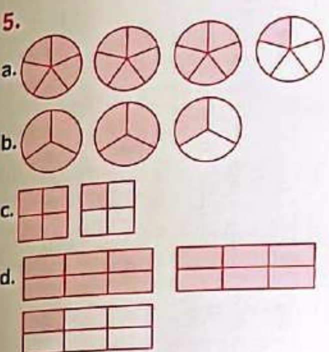
4. a. $\frac{9}{4} = 2\frac{1}{4}$ b. $\frac{11}{3} = 3\frac{2}{3}$

c. $\frac{35}{8} = 4\frac{3}{8}$ d. $\frac{6}{3} = 2$

e. $\frac{21}{6} = 3\frac{3}{6}$ f. $\frac{10}{4} = 2\frac{2}{4}$

g. $\frac{15}{6} = 2\frac{3}{6}$ h. $\frac{24}{8} = 3$

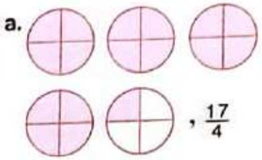
5.

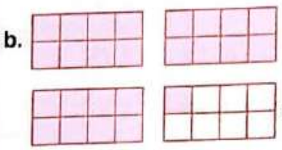


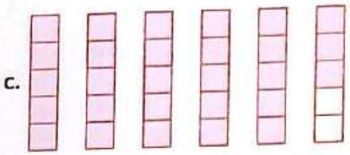
6. a. $\frac{6}{5}$, $1\frac{1}{5}$ b. $\frac{9}{6}$, $1\frac{3}{6}$

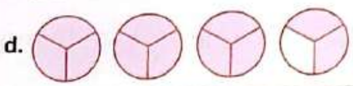
c. $\frac{5}{4}$, $1\frac{1}{4}$ d. $\frac{7}{6}$, $1\frac{1}{6}$

7.

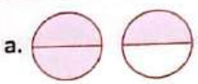
a.  , $\frac{17}{4}$

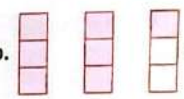
b.  , $\frac{25}{8}$

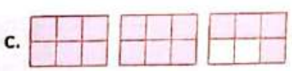
c.  , $\frac{28}{5}$

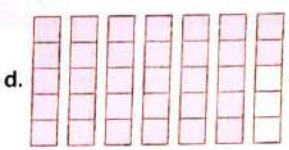
d.  , $\frac{11}{3}$

8.

a.  , $1\frac{1}{2}$

b.  , $2\frac{1}{3}$

c.  , $2\frac{4}{6}$

d.  , $6\frac{2}{5}$

9. a. $\frac{7}{2}$ b. $\frac{13}{6}$ c. $\frac{55}{8}$
d. $\frac{21}{4}$ e. $\frac{21}{5}$ f. $\frac{20}{3}$
g. $\frac{38}{3}$ h. $\frac{37}{4}$ i. $\frac{42}{5}$
j. $\frac{101}{4}$ k. $\frac{45}{2}$ L. $\frac{34}{5}$

10. a. $4\frac{1}{2}$ b. $3\frac{4}{5}$ c. $8\frac{1}{3}$
d. 7 e. $5\frac{3}{8}$ f. $8\frac{1}{6}$
g. 9 h. $7\frac{5}{9}$ i. $5\frac{3}{4}$
j. $4\frac{3}{5}$ k. $11\frac{1}{3}$ L. 7

11. a. 1 , 2 , 3 , 4 b. 10
c. 21 d. 25 e. 3
f. 4 g. 9

12. a. $\frac{1}{5}$ b. 8 c. $\frac{8}{5}$

13. What Maher did wrong , he replaced the whole number with the remainder.
The correct answer is $\frac{13}{5} = 2\frac{3}{5}$

14. The perimeter $= \frac{3}{8}+\frac{3}{8}+\frac{3}{8}+\frac{3}{8}$
$= \frac{12}{8} = 1\frac{4}{8}$ metre.

Answers of multiple choice questions

1. D 2. D 3. D
4. B 5. A 6. B
7. C 8. A , D 9. A

Exercise 10

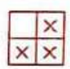
1. a. $\frac{2}{3}+\frac{2}{3}+1+1+1 = \frac{4}{3}+3$
$= 1\frac{1}{3}+3$
$= 4\frac{1}{3}$

b. $\frac{1}{4}+1+\frac{1}{4}+1 = 2+\frac{2}{4} = 2\frac{2}{4}$

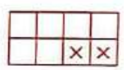
c. $\frac{2}{4}+1+1+1+\frac{1}{4} = 3+\frac{3}{4} = 3\frac{3}{4}$

d. $1+1+\frac{2}{5}+\frac{1}{5} = 2+\frac{3}{5} = 2\frac{3}{5}$

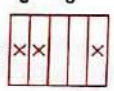
2. a. $2+\frac{3}{7} = 2\frac{3}{7}$ b. $\frac{11}{12}+5 = 5\frac{11}{12}$
c. $\frac{7}{9}+4 = 4\frac{7}{9}$ d. $4+\frac{4}{5} = 4\frac{4}{5}$
e. $7+\frac{1}{2} = 7\frac{1}{2}$ f. $\frac{5}{5} = 1$
g. $4+\frac{6}{5} = 4+1\frac{1}{5} = 5\frac{1}{5}$
h. $6+\frac{9}{8} = 6+1\frac{1}{8} = 7\frac{1}{8}$

3. a. 

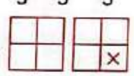
$1-\frac{3}{4} = \frac{1}{4}$

b. 

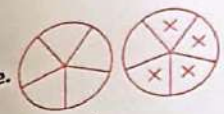
$1-\frac{2}{8} = \frac{6}{8}$

c. 

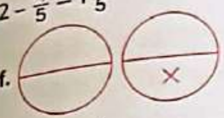
$1-\frac{2}{5}-\frac{1}{5} = \frac{2}{5}$

d. 

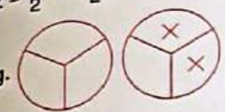
$2-\frac{1}{4} = 1\frac{3}{4}$

e. 

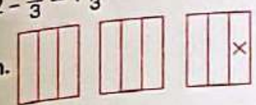
$2-\frac{4}{5} = 1\frac{1}{5}$

f. 

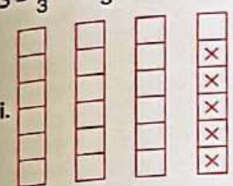
$2-\frac{1}{2} = 1\frac{1}{2}$

g. 

$2-\frac{2}{3} = 1\frac{1}{3}$

h. 

$3-\frac{1}{3} = 2\frac{2}{3}$

i. 

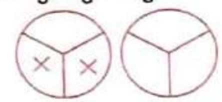
$4-\frac{5}{6} = 3\frac{1}{6}$

4. a. $\frac{3}{8}+\frac{2}{8}+\frac{7}{8} = \frac{12}{8} = 1\frac{4}{8}$

b. $1+2+\frac{1}{5}+\frac{3}{5}+\frac{4}{5} = 3+\frac{8}{5}$
$= 3+1\frac{3}{5}$
$= 4\frac{3}{5}$

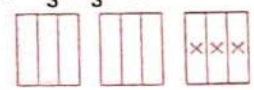
c. $1-\frac{3}{6}-\frac{1}{6} = \frac{2}{6}$

d. $2-\frac{1}{3}-\frac{1}{3} = 1\frac{1}{3}$



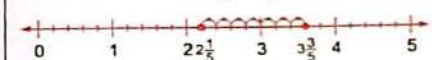
e. $1+\frac{1}{7}+2+\frac{3}{7} = 3+\frac{4}{7} = 3\frac{4}{7}$

f. $3-\frac{2}{3}-\frac{1}{3} = 2$

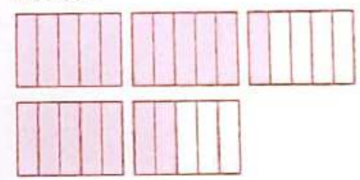


5.

a. Number line : $2\frac{1}{5}+\frac{7}{5}$

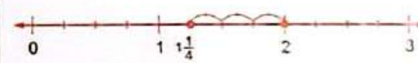


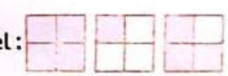
Model :



Equation : $2\frac{1}{5}+1\frac{2}{5} = 3\frac{3}{5}$

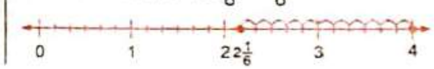
b. Number line : $1\frac{1}{4}+\frac{3}{4}$



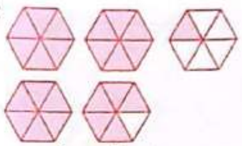
Model : 

Equation : $1\frac{1}{4}+\frac{3}{4} = 1\frac{4}{4} = 2$

c. Number line : $2\frac{1}{6}+\frac{11}{6}$



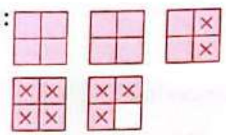
Model:



Equation: $2\frac{1}{6}+1\frac{5}{6}=4$

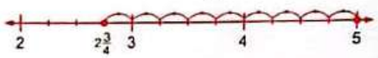
d. Number line : $4\frac{3}{4}-\frac{9}{4}$

Model:

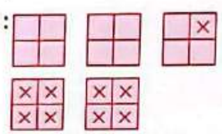


Equation: $4\frac{3}{4}-2\frac{1}{4}=2\frac{2}{4}$

e. Number line : $5-\frac{9}{4}$

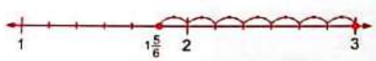


Model:



Equation: $5-2\frac{1}{4}=2\frac{3}{4}$

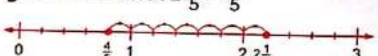
f. Number line : $3-\frac{7}{6}$



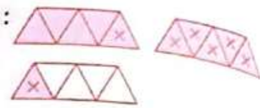
Model:

Equation: $3-1\frac{1}{6}=1\frac{5}{6}$

g. Number line : $2\frac{1}{5}-\frac{7}{5}$



Model:



Equation: $2\frac{1}{5}-1\frac{2}{5}=\frac{4}{5}$

6. a. $3\frac{6}{9}$ b. $3\frac{7}{5}=4\frac{2}{5}$
c. $5\frac{4}{4}=6$ d. $4\frac{3}{3}=5$
e. $6\frac{6}{6}=7$ f. $5\frac{10}{7}=6\frac{3}{7}$
g. $1\frac{1}{5}$ h. $2\frac{1}{3}$
i. $1\frac{4}{8}$ j. $\frac{7}{8}$
k. $\frac{2}{4}$ l. $1\frac{2}{6}$

7. a. $4\frac{3}{5}-3\frac{2}{5}=1\frac{1}{5}$
b. $6\frac{5}{6}-4\frac{5}{6}=2$
c. $7\frac{5}{9}-3\frac{1}{9}=4\frac{4}{9}$
d. $2\frac{1}{4}+3\frac{2}{4}=5\frac{3}{4}$
e. $3\frac{1}{3}+1\frac{1}{3}=4\frac{2}{3}$
f. $4\frac{4}{5}-1\frac{1}{5}=3\frac{3}{5}$
g. $1\frac{5}{7}+2\frac{3}{7}=3\frac{8}{7}=4\frac{1}{7}$
h. $3-1\frac{1}{7}=1\frac{6}{7}$
i. $4\frac{1}{4}-2\frac{3}{4}=1\frac{2}{4}$
j. $5-3\frac{1}{4}=1\frac{3}{4}$

8. What Hanan bought in all
$=2\frac{3}{4}+1\frac{1}{4}=3\frac{4}{4}=4$ m.

9. The total $=1\frac{3}{8}+1\frac{5}{8}=2\frac{8}{8}$
$=3$ litres.

10. The left $=3\frac{1}{4}-2\frac{3}{4}=\frac{2}{4}$ cookies.

11. The left $=1-\frac{1}{3}=\frac{3}{3}-\frac{1}{3}=\frac{2}{3}$ kg.

12. What Fatema will need
$=1-\frac{1}{5}-\frac{3}{5}=\frac{1}{5}$ bottle.

13. The time Heba read alone
$=2-\frac{1}{2}-\frac{1}{2}=1$ hour

14. The total mass
$=1\frac{1}{2}+\frac{1}{2}+2\frac{1}{2}=4\frac{1}{2}$ kg

15. The left $=2\frac{1}{4}-1\frac{2}{4}$
$=\frac{3}{4}$ pans of butter

16. What she will use
$=\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}=2$ teaspoons.

17. The perimeter
$=1\frac{1}{4}+1\frac{1}{4}+1\frac{1}{4}+1\frac{1}{4}=5$ m

18. The perimeter
$=3\frac{1}{5}+3\frac{1}{5}+1\frac{1}{5}+1\frac{1}{5}=8\frac{4}{5}$ cm

19. For example : $2\frac{2}{9}+3\frac{5}{9}$
- Esslam has $2\frac{2}{9}$ kg of apple and his brother has $3\frac{5}{9}$ kg of apple. What is the total mass with Esslam and his brother?

They has $=2\frac{2}{9}+3\frac{5}{9}=5\frac{7}{9}$ kg
(Answers may vary)

20. The length of the fourth side
$=20-3\frac{1}{8}-5\frac{3}{8}-4\frac{5}{8}=6\frac{7}{8}$ km.

Answers of multiple choice questions

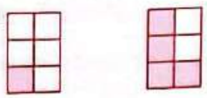
1.	D	2.	A	3.	C
4.	B	5.	A	6.	C
7.	B	8.	D	9.	C
10.	B	11.	B	12.	D

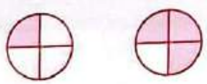
Concept 2

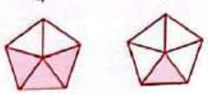
Comparing Fractions

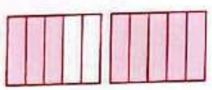
Exercise 11

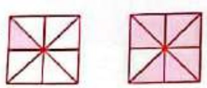
1. a. $\frac{2}{8} < \frac{3}{8}$ b. $\frac{5}{8} > \frac{3}{8}$ c. $\frac{3}{3} > \frac{1}{3}$
   d. $\frac{1}{4} < \frac{2}{4}$ e. $\frac{3}{6} = \frac{3}{6}$ f. $\frac{3}{5} > \frac{2}{5}$
   g. $\frac{1}{8} < \frac{1}{4}$ h. $\frac{2}{5} < \frac{2}{3}$ i. $\frac{4}{7} > \frac{3}{7}$
   j. $\frac{4}{5} > \frac{4}{6}$ k. $\frac{1}{3} > \frac{1}{4}$ l. $\frac{5}{8} < \frac{5}{6}$

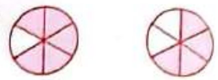
2. a.

$\frac{1}{6} < \frac{4}{6}$

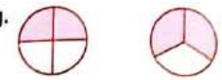
b.

$\frac{1}{4} < \frac{3}{4}$

c.

$\frac{3}{5} > \frac{1}{5}$

d.

$\frac{3}{5} < \frac{5}{5}$

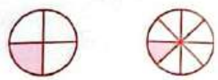
e.

$\frac{1}{8} < \frac{7}{8}$

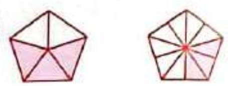
f.

$\frac{5}{6} > \frac{4}{6}$

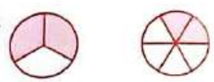
g.

$\frac{2}{4} < \frac{2}{3}$

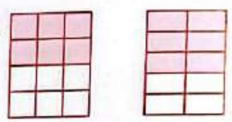
h.

$\frac{3}{6} > \frac{3}{9}$

i.

$\frac{1}{4} > \frac{1}{8}$

j.

$\frac{3}{5} > \frac{3}{10}$

k.

$\frac{2}{3} > \frac{2}{6}$

l.

$\frac{6}{12} < \frac{6}{10}$

3. a. > b. < c. <
   d. < e. < f. <
   g. < h. < i. >
   j. > k. > l. <
   m. < n. < o. >
   p. > q. > r. <

4. a. $\frac{2}{5}$ b. $\frac{1}{4}$ c. $\frac{3}{8}$
   d. $\frac{4}{9}$ e. $\frac{5}{8}$ f. $\frac{6}{6}$
   g. $\frac{4}{5}$ h. $\frac{8}{10}$ i. $\frac{3}{9}$
   j. $\frac{11}{11}$ k. $\frac{3}{8}$ l. $\frac{5}{6}$

5. a. $\frac{1}{5}, \frac{2}{5}, \frac{3}{5}, \frac{4}{5}$
   b. $\frac{1}{6}, \frac{2}{6}, \frac{3}{6}, \frac{4}{6}, \frac{5}{6}$
   c. $\frac{1}{8}, \frac{2}{8}, \frac{3}{8}, \frac{5}{8}, \frac{6}{8}, \frac{7}{8}, \frac{8}{8}$
   d. $\frac{1}{5}, \frac{1}{4}, \frac{1}{3}, \frac{1}{2}$
   e. $\frac{2}{12}, \frac{2}{8}, \frac{2}{7}, \frac{2}{6}, \frac{2}{5}, \frac{2}{4}, \frac{2}{3}$
   f. $\frac{3}{12}, \frac{3}{8}, \frac{3}{6}, \frac{3}{5}, \frac{3}{3}$

6. a. $\frac{5}{7}, \frac{4}{7}, \frac{3}{7}, \frac{1}{7}$
   b. $\frac{7}{11}, \frac{5}{11}, \frac{4}{11}, \frac{3}{11}, \frac{2}{11}$
   c. $\frac{9}{10}, \frac{7}{10}, \frac{6}{10}, \frac{5}{10}, \frac{2}{10}$
   d. $\frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{7}, \frac{1}{10}$
   e. $\frac{2}{3}, \frac{2}{5}, \frac{2}{7}, \frac{2}{9}, \frac{2}{10}$
   f. $\frac{5}{5}, \frac{5}{6}, \frac{5}{7}, \frac{5}{9}, \frac{5}{11}$

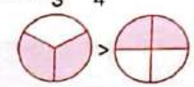
7. a. ✔ b. ✗ c. ✔
   d. ✗ e. ✗ f. ✗
   g. ✔ h. ✗ i. ✔
   j. ✗

8. a. < b. <
   c. Yes, because improper fractions are greater than 1, so they always are greater than the proper fraction.
   If the numerator is 1 in the proper fractions, then the proper fraction of the smallest denominator always is greatest.

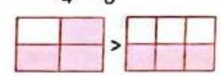
9. I perfere $\frac{6}{12}$ of candy bar because $\frac{6}{12} > \frac{5}{12}$

10. a. > , > , <
    The order: $\frac{1}{8}, \frac{2}{8}, \frac{3}{8}, \frac{4}{8}, \frac{6}{8}, \frac{7}{8}$
    b. > , < , >
    The order: $\frac{4}{10}, \frac{4}{9}, \frac{4}{8}, \frac{4}{5}, \frac{4}{4}, \frac{4}{1}$
    c. < , < , >
    The order: $\frac{1}{9}, \frac{4}{9}, \frac{5}{9}, \frac{6}{9}, \frac{8}{9}, \frac{9}{9}$
    d. < , > , >
    The order: $\frac{5}{15}, \frac{5}{12}, \frac{5}{10}, \frac{5}{9}, \frac{5}{8}, \frac{5}{5}$

11. Hady scored more goals because $\frac{2}{3} > \frac{2}{4}$



12. Lamia ate more than Ganna. because $\frac{3}{4} > \frac{3}{6}$



13. a. • What Sherouk ate
$= \frac{2}{15} + \frac{7}{15} = \frac{9}{15}$
• What Yehia ate
$= \frac{7}{15} + \frac{8}{15} = \frac{15}{15} = 1$
• What Ziad ate
$= \frac{4}{15} + \frac{10}{15} = \frac{14}{15}$
b. • The remainder with Sherouk
$= 1 - \frac{9}{15} = \frac{15}{15} - \frac{9}{15} = \frac{6}{15}$
• The remainder with Yehia
$= 1 - 1 = 0$
• The remainder with Ziad
$= 1 - \frac{14}{15} = \frac{15}{15} - \frac{14}{15} = \frac{1}{15}$
c. Sherouk has the greatest remainder amount of chocolate.
d. Yehia has the least remainder amount of chocolate.

Answers of multiple choice questions

1. A 2. A 3. D
4. D 5. C 6. D
7. A 8. D 9. B
10. C

Exercise 12

1. a. Equivalent b. Equivalent
c. Not equivalent
d. Not equivalent
e. Not equivalent f. Equivalent

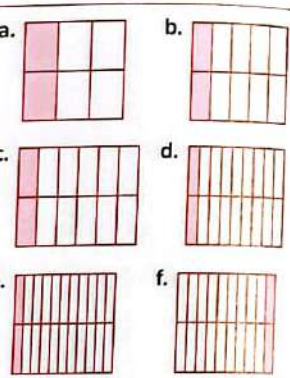
2. a. 2 b. 4 c. 2
d. 8 e. 14 f. 18
g. 15 h. 12 i. 4

3. a. 2 b. 3 c. 6
d. $\frac{4}{10}$ e. $\frac{8}{12}$ f. $\frac{4}{10}$
g. $\frac{1}{3} = \frac{4}{12}$ h. $\frac{1}{2} = \frac{4}{8}$ i. $\frac{3}{4} = \frac{6}{8}$
j. $\frac{4}{9} = \frac{8}{18}$ k. $\frac{2}{6} = \frac{4}{12}$ l. $\frac{6}{16} = \frac{3}{8}$
m. $\frac{5}{7} = \frac{10}{14}$ n. $\frac{4}{6} = \frac{8}{12}$ o. $\frac{3}{4} = \frac{6}{8}$

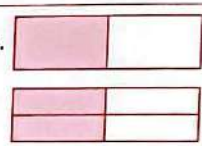
4. a. $\frac{1}{2}$, $\frac{2}{4}$ b. $\frac{1}{3}$, $\frac{2}{6}$ c. $\frac{4}{5}$, $\frac{8}{10}$
d. $\frac{2}{6}$, $\frac{4}{12}$ e. $\frac{7}{9}$, $\frac{14}{18}$

5. Answer by yourself.

6. a. b. c. d. e. f.

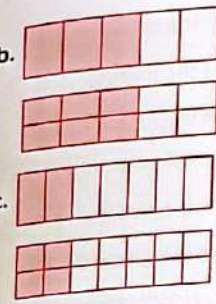


7. a.



$\frac{1}{2}$ $\frac{2}{4}$

b. c.



$\frac{3}{5}$ $\frac{6}{10}$ $\frac{2}{7}$ $\frac{4}{14}$

(Answers may vary)

8. a. $\frac{7}{4}$, $1\frac{3}{4}$ b. $\frac{14}{8}$, $1\frac{6}{8}$
c. $\frac{3}{2}$, $1\frac{1}{2}$ d. $\frac{6}{4}$, $1\frac{2}{4}$
e. $\frac{12}{9}$, $1\frac{3}{9}$ f. $\frac{11}{7}$, $1\frac{4}{7}$

9. [1] a. Equivalent
b. Not equivalent
c. Equivalent
d. Not equivalent
e. Equivalent
f. Not equivalent
[2] $\frac{2}{8}$, $\frac{3}{12}$ [3] $\frac{4}{6}$, $\frac{6}{9}$

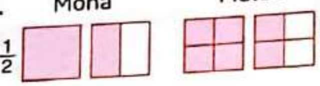
10. a. 4 b. 8 c. 4 d. 9

11. a. ✓ b. ✗ c. ✓ d. ✗

12. a.

b. $\frac{2}{8}$

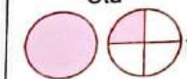
13.
a. Mona Malek



$1\frac{1}{2}$ $\frac{6}{4}$

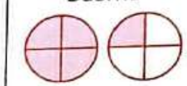
b. They ate the same amount, because $1\frac{1}{2} = \frac{6}{4}$

14.
Ola



$1\frac{1}{4}$

Basma



$\frac{5}{4}$

$1\frac{1}{4} = \frac{5}{4}$

Ola and Basma ate the same amount because $1\frac{1}{4} = \frac{5}{4}$

15. Kareem won because his rectangular Pizza is bigger than Magdy's Pizza. "The two pizzas are not the same size"

16. a. $\frac{2}{4}$ b. $\frac{6}{4}$ c. $\frac{8}{4}$
d. $\frac{2}{4}$ e. $\frac{1}{4}$ f. $\frac{4}{4}$

Answers of multiple choice questions

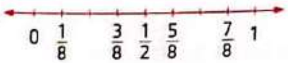
1. D 2. C 3. C
4. A 5. B 6. B
7. C 8. A

Exercise 13

First Problems on benchmark fractions

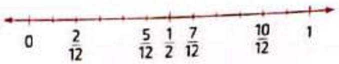
1.

a.



$\frac{1}{2}$, 1 , 0 , $\frac{1}{2}$

b.

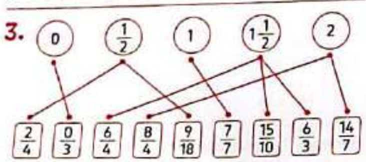


1 , $\frac{1}{2}$, $\frac{1}{2}$, 0

2.

Fraction	Number line	0	$\frac{1}{2}$	1
$\frac{2}{4}$	0 — $\frac{2}{4}$ — 1		✔	
$\frac{1}{6}$	0 — $\frac{1}{6}$ — 1	✔		
$\frac{5}{8}$	0 — $\frac{7}{8}$ — 1			✔
$\frac{4}{10}$	0 — $\frac{4}{10}$ — 1		✔	

3.



4. a. (1) At the beginning : $0 = \frac{0}{8}$

At the middle : $\frac{1}{2} = \frac{4}{8}$

At the end $= 1 = \frac{8}{8}$

(2) At the beginning : $0 = \frac{0}{12}$

At the middle : $\frac{1}{2} = \frac{6}{12}$

At the end $= 1 = \frac{12}{12}$

(3) At the beginning : $0 = \frac{0}{10}$

At the middle : $\frac{1}{2} = \frac{5}{10}$

At the end $= 1 = \frac{10}{10}$

b. Sherif must place the benches at :

0 km , $\frac{2}{4}$ km , $\frac{4}{4}$ km , $\frac{6}{4}$ km , 2 km

Second Problems on comparing fractions using benchmarks

1. a. > , > , > b. < , < , <

c. > , > , > d. > , > , >

2.

a. >	b. >	c. =
d. >	e. =	f. <
g. >	h. >	i. >
j. <	k. <	l. >

3.

a. ✔	b. ✗	c. ✗
d. ✗	e. ✗	f. ✔
g. ✗	h. ✗	i. ✔
j. ✔	k. ✗	l. ✔

4. a. $\frac{2}{10}$, $\frac{3}{6}$, $\frac{6}{8}$ b. $\frac{2}{6}$, $\frac{5}{10}$, $\frac{7}{12}$

c. $\frac{9}{9}$, $\frac{5}{6}$, $\frac{1}{4}$ d. $\frac{5}{5}$, $\frac{10}{11}$, $\frac{10}{20}$

5. a. $\frac{2}{5}$ b. $\frac{7}{16}$

Story problems

1.

First cake ⟶ $\frac{5}{10} = \frac{1}{2}$

Second cake ⟶ $\frac{5}{6} > \frac{1}{2}$

So, the second cake had more eaten.

2.

Bucket 1 ⟶ $\frac{5}{9} > \frac{1}{2}$

Bucket 2 ⟶ $\frac{5}{10} = \frac{1}{2}$

So, the bucket 2 has less water.

3. Rashad ate more because

$\frac{4}{8} = \frac{1}{2}$, $\frac{4}{6} > \frac{1}{2}$

4.

Mariam ate $\frac{4}{12}$ and $\frac{4}{12} < \frac{1}{2}$

Jana ate $\frac{3}{6}$ and $\frac{3}{6} = \frac{1}{2}$

then , Jana ate more than Mariam.

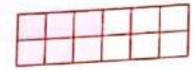
5.

Hatem made $\frac{14}{18}$ and $\frac{14}{18} > \frac{1}{2}$

Amir made $\frac{8}{16}$ and $\frac{8}{16} = \frac{1}{2}$

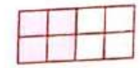
So, Hatem made a larger fraction of the shots taken.

6. Mazen's model



Mazen ate $\frac{1}{2}$ of the bar

Ezz's model



Ezz ate $\frac{1}{2}$ of the bar

But the two model bars are not the same size.

So, $\frac{1}{2}$ of Mazen's bar > $\frac{1}{2}$ of Ezz's bar

7.

Amir ate $\frac{3}{9}$ and $\frac{3}{9} < \frac{1}{2}$

Sarah ate $\frac{5}{8}$ and $\frac{5}{8} > \frac{1}{2}$

So, Sarah ate more than half.

8. 4

Answers of multiple choice questions

1. B	2. C	3. C
4. B	5. D	6. C
7. C	8. C	9. A
10. B		

Concept 3

Multiplication and Fractions

Exercise 14

1. a. $\frac{4}{12}$ b. $\frac{3}{12}$ c. $\frac{10}{25}$
d. $\frac{6}{8}$ e. $\frac{30}{42}$ f. $\frac{16}{24}$
g. $\frac{1}{2}$ h. $\frac{1}{2}$ i. $\frac{2}{8}$
j. $(\div 5)$, $\frac{2}{3}$ k. $(\div 10)$, $\frac{2}{5}$ l. $\frac{3}{4}$

2. a. $\frac{8}{12}$ b. $\frac{15}{20}$ c. $\frac{18}{21}$
d. $\frac{18}{22}$ e. $\frac{56}{72}$ f. $\frac{80}{130}$

3. a. $\frac{2}{12}$ b. $\frac{6}{9}$ c. $\frac{1}{3}$
d. $\frac{1}{5}$ e. $\frac{2}{3}$ f. $\frac{3}{3}$
g. $\frac{4}{5}$ h. $\frac{14}{16}$
(Answers may vary)

4. a. $\frac{4}{10} = \frac{6}{15} = \frac{8}{20}$ b. $\frac{1}{3} = \frac{3}{9} = \frac{5}{15}$
c. $\frac{8}{12} = \frac{12}{18} = \frac{20}{30}$ d. $\frac{8}{20} = \frac{12}{30} = \frac{16}{40}$
e. $\frac{1}{3} = \frac{2}{6} = \frac{4}{12}$ f. $\frac{2}{10} = \frac{1}{5} = \frac{5}{25}$
(Answers may vary)

5. a. $\frac{4}{6}, \frac{6}{9}, \frac{8}{12}, \frac{10}{15}, \frac{12}{18}$
b. $\frac{1}{2}, \frac{3}{6}, \frac{4}{8}, \frac{5}{10}, \frac{6}{12}$
c. $\frac{6}{10}, \frac{9}{15}, \frac{12}{20}, \frac{15}{25}, \frac{18}{30}$
d. $\frac{1}{3}, \frac{2}{6}, \frac{4}{12}, \frac{5}{15}, \frac{6}{18}$

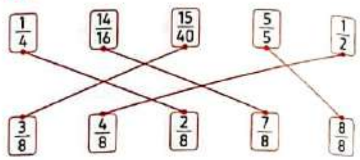
6. a. True b. True c. False
d. False e. False f. True
g. True h. False i. False
j. True k. True l. False

7. a. 3 b. 6 c. 2 d. 9
e. 4 f. 15 g. 45 h. 45
i. 1 j. 6 k. 21 l. 3
m. 39 n. 6 o. 4 p. 50

8. a. 3 b. 3 c. 5
d. 1 e. 15 f. 6

9. a. ✗ b. ✓ c. ✗ d. ✗
e. ✓ f. ✓ g. ✓ h. ✗
i. ✓ j. ✗

10.



11. a. 2 , $1 = \frac{2}{2}$ b. 4 , $1 = \frac{4}{4}$
c. 10 , $1 = \frac{10}{10}$
d. $\frac{2}{2} = \frac{4}{4} = \frac{10}{10}$, when the numerator and denominator are the same the fraction is equivalent to 1.
e. 25

12. No.
$\frac{2}{3} = \frac{4}{6} = \frac{6}{9} = \frac{8}{12} = \frac{10}{15} = \frac{12}{18} = \frac{14}{21} = \frac{16}{24} = \frac{18}{27}$
So, $\frac{2}{3} \neq \frac{16}{25}$

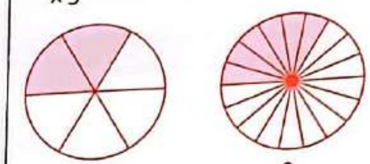
13. No, because we can multiply the same number by the numerator and denominator to find equivalent fraction.
Example: $\frac{2}{3} \neq \frac{2+4}{3+4} \neq \frac{6}{7}$
but: $\frac{2}{3} = \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$
You can check using fraction wall

14. $\frac{6}{9} = \frac{6 \div 3}{9 \div 3} = \frac{2}{3}$
but: $\frac{9}{12} = \frac{9 \div 3}{12 \div 3} = \frac{3}{4}$
Using fraction wall:
So, $\frac{2}{3} \neq \frac{3}{4}$

15. ×4
$\frac{3}{4} = \frac{X}{16}$, then $X = 3 \times 4 = 12$
×4
So, 12 birds flew away.

16. ×3
$\frac{2}{3} = \frac{?}{9}$, then the number of cookies $= 2 \times 3 = 6$ cookies.
×3

17. ×3
$\frac{2}{6} = \frac{?}{18}$ So, the number of pieces $= 2 \times 3 = 6$ pieces.
×3



$\frac{2}{6}$ $\frac{6}{18}$

18. $\frac{10}{15} = \frac{?}{6}$
×2
$\frac{10}{15} = \frac{10 \div 5}{15 \div 5} = \frac{2}{3}$, then $\frac{2}{3} = \frac{?}{6}$
×2
So, what Sylvia's team won $= 2 \times 2 = 4$ games.

19. What Omar gave his friend
Heba $= \frac{3}{12} = \frac{3 \div 3}{12 \div 3} = \frac{1}{4}$

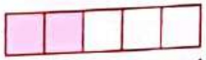
20. 1. $\frac{6}{12}$ or $\frac{1}{2}$ (6 pieces)
2. $\frac{4}{12}$ or $\frac{1}{3}$ (4 pieces)
3. $\frac{2}{12}$ or $\frac{1}{6}$ 4. $\frac{4}{24}$ or $\frac{2}{12}$

21. $\frac{1}{3}$

Answers of multiple choice questions

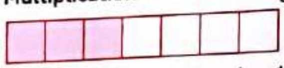
1. B 2. A 3. B 4. D
5. C 6. A 7. D 8. B
9. A 10. D 11. C 12. A
13. C 14. B 15. B 16. C
17. A , D 18. D

Exercise 15

1. a. 

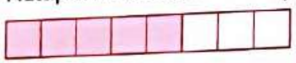
Addition sentence : $\frac{1}{5}+\frac{1}{5}$

Multiplication sentence : $2\times\frac{1}{5}$

b. 

Addition sentence : $\frac{1}{7}+\frac{1}{7}+\frac{1}{7}$

Multiplication sentence : $3\times\frac{1}{7}$

c. 

Addition sentence :

$\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}$

Multiplication sentence : $5\times\frac{1}{8}$

d.

Addition sentence :

$\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}$

Multiplication sentence : $4\times\frac{1}{6}$

2. a. Fraction : $\frac{5}{6}$

Addition sentence :

$\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}$

Multiplication sentence : $5\times\frac{1}{6}$

b. Fraction : $\frac{3}{5}$

Addition sentence : $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$

Multiplication sentence : $3\times\frac{1}{5}$

c. Fraction : $\frac{2}{4}$

Addition sentence : $\frac{1}{4}+\frac{1}{4}$

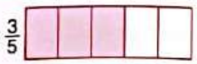
Multiplication sentence : $2\times\frac{1}{4}$

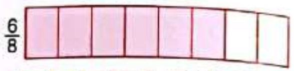
d. Fraction : $\frac{6}{8}$

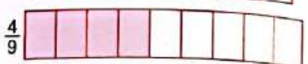
Addition sentence :

$\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}$

Multiplication sentence : $6\times\frac{1}{8}$

3. a. $\frac{3}{5}$ 

b. $\frac{6}{8}$ 

c. $\frac{4}{9}$ 

d. $\frac{5}{3}$

4. a. $\frac{2}{5}$ b. $\frac{5}{7}$ c. $\frac{4}{9}$
d. $\frac{8}{9}$ e. $\frac{3}{4}$ f. $\frac{2}{6}$
g. $\frac{3}{3}=1$ h. $\frac{6}{7}$ i. $\frac{6}{7}$

5. a. ✔ b. ✘ c. ✘ d. ✔
e. ✔ f. ✘ g. ✔ h. ✔

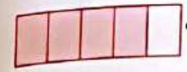
6. a. ⟶ 3 b. ⟶ 1
c. ⟶ 5 d. ⟶ 2
e. ⟶ 4

7. She drinks $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}=\frac{4}{5}$

"Sum of unit fractions"

She drinks $4\times\frac{1}{5}=\frac{4}{5}$

"Multiplication sentence"

 "bar model"

8. It will take $\frac{2}{6}\times 2=\frac{4}{6}$ of a bag of flour.

9. Number of pizzas $=\frac{2}{9}\times 7$

$=\frac{2}{9}+\frac{2}{9}+\frac{2}{9}+\frac{2}{9}+\frac{2}{9}+\frac{2}{9}+\frac{2}{9}$

$=\frac{14}{9}=1\frac{5}{9}$ pizzas.

10. When we multiply a proper fraction and a whole number [except 0 and 1] the product is less than the whole number factor , but greater than the fraction factor. This is different from multiplying whole numbers because the product is always greater than either factor.

Answers of multiple choice questions

1. D 2. C 3. B 4. D
5. C 6. B 7. B 8. C
9. D 10. B

Exercise 16

1. The length of remaining part
$=12\frac{3}{4}-3\frac{1}{4}=9\frac{2}{4}$ m.

2. What Heba needs $=\frac{5}{8}-\frac{2}{8}=\frac{3}{8}$ of a jug of milk.

3. What Kareem ran in all
$=\frac{4}{2}+\frac{1}{2}+\frac{6}{2}=2+\frac{1}{2}+3=5\frac{1}{2}$ km

4. The left $=1-\frac{1}{8}-\frac{1}{8}-\frac{1}{8}-\frac{1}{8}$
$=\frac{4}{8}$ of the cake.

5. What he has jogged
$=7\frac{1}{5}+5\frac{1}{5}+8\frac{2}{5}=20\frac{4}{5}$ km

6. What Adam drank $=1\frac{3}{4}$
$=1\frac{6}{8}$ litres.

What Omar drank $=1\frac{7}{8}$ litres.

So, Omar drank more.

7. What Tahani ate $=\frac{2}{8}+\frac{5}{8}=\frac{7}{8}$ of the bunch of cakes.

8. The difference $=1\frac{2}{9}-\frac{8}{9}$
$=\frac{11}{9}-\frac{8}{9}=\frac{3}{9}$ km

9. The remainder $=1-\frac{5}{16}$
$=\frac{16}{16}-\frac{5}{16}$
$=\frac{11}{16}$ of the wall.

10. The remainder $=1-\frac{1}{9}-\frac{5}{9}=\frac{3}{9}$ of the homework.

11. The difference = $\frac{5}{8} - \frac{2}{8} = \frac{3}{8}$ can.

12. The difference = $\frac{9}{12} - \frac{3}{12} = \frac{6}{12}$

13. The left = $\frac{3}{4} - \frac{1}{4} - \frac{1}{4} = \frac{1}{4}$ cup.

14. • $2\frac{2}{7} + 1\frac{5}{7}$

Lara runs $2\frac{2}{7}$ km. on Sunday and $1\frac{5}{7}$ km , on Monday , what is the total distance she run in all ?

What she runs in all = $2\frac{2}{7} + 1\frac{5}{7}$
$= 3\frac{7}{7} = 4$ km.

• $3\frac{7}{10} - 1\frac{8}{10}$

Mai has $3\frac{7}{10}$ kg of meat , Nora has $1\frac{8}{10}$ kg of meat , what is the difference between them ?

The difference = $3\frac{7}{10} - 1\frac{8}{10}$
$= 2\frac{17}{10} - 1\frac{8}{10} = 1\frac{9}{10}$ kg

[Answers may vary]

Answers of multiple choice questions

1. B 2. A 3. C 4. C
5. A 6. C 7. C

Unit 9 Assessments

Model 1

1.
a. B b. C c. D

2.
a. $6\frac{5}{6}$ b. $5\frac{4}{7}$ c. $1\frac{7}{9}$

3.
a. ⟶ 2 b. ⟶ 4
c. ⟶ 1 d. ⟶ 5
e. ⟶ 3

4.
a. ✔ b. ✔ c. ✗

5.
what Sara needs = $\frac{7}{10} - \frac{2}{10} = \frac{5}{10}$ of jug of milk.

Model 2

1.
a. C b. B c. C

2.
a. $3\frac{2}{9}$ b. 25 c. $5\frac{4}{5}$

3.
a. ⟶ 5 b. ⟶ 4
c. ⟶ 1 d. ⟶ 2
e. ⟶ 3

4.
a. ✗ b. ✔ c. ✗

5.
The order is $\frac{3}{8}$, $\frac{5}{10}$, $\frac{7}{9}$

Answers of unit 10

Decimals

» **Concept 1 :** Defining Decimals
» **Concept 2 :** Decimals and Fractions
» **Concept 3 :** Working with Decimals

Concept 1

Defining Decimals

Exercise 17

1. a. 0.3 b. 0.8 c. 0.6
   d. 0.9 e. 0.4 f. 0.1
   g. 0.7 h. 0.5 i. 2.8
   j. 1.2

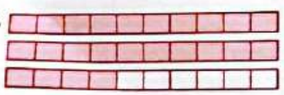
2. a.

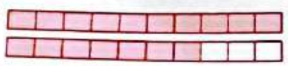
b.

c.

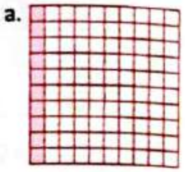
d.

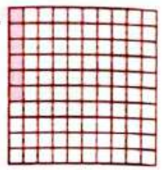
e.

f.


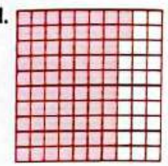
g.


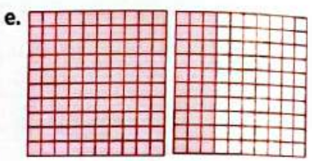
3. a. 0.46 b. 0.13
   c. 0.42 d. 0.06
   e. 0.98 f. 0.85
   g. 1.33 h. 1.03

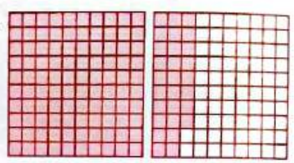
4. a.


b.


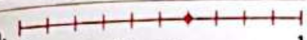
c.

d.


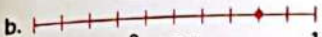
e.


f.


5. a. 0.2 b. 1.0 c. 1.1 d. 1.6
   e. 3.5 f. 0.23 g. 0.5

6. a.


$\frac{6}{10} = 0.6$

b.


$\frac{8}{10} = 0.8$

c.

$\frac{4}{10} = 0.4$

d.

$\frac{1}{10} = 0.1$

e.

$\frac{5}{10} = 0.5$

f.

$\frac{9}{10} = 0.9$

7. a. 0.7 b. 0.5 c. 0.3
   d. 0.2 e. 0.73 f. 0.15
   g. 0.07 h. 0.03

8. a. $\frac{2}{10}$ b. $\frac{6}{10}$ c. $\frac{8}{10}$
   d. $\frac{1}{10}$ e. $\frac{23}{100}$ f. $\frac{69}{100}$
   g. $\frac{8}{100}$ h. $\frac{2}{100}$

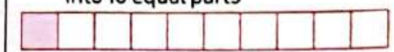
9. a. 0.2 b. 0.5 c. 0.7
   d. 0.8 e. 0.1

10. a. 0.99 b. 0.69 c. 0.47
    d. 0.09 e. 0.22

11. a. ✗ b. ✓ c. ✓ d. ✗
    e. ✗ f. ✗ g. ✓ h. ✗

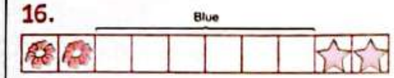
12. a. $\frac{4}{10} = 0.4$ b. $\frac{7}{10} = 0.7$
    c. $\frac{9}{10} = 0.9$ d. $\frac{5}{10} = 0.5$
    e. $\frac{4}{10} = 0.4$ f. $\frac{64}{100} = 0.64$
    g. $\frac{76}{100} = 0.76$ h. $\frac{3}{100} = 0.03$
    i. $\frac{21}{100} = 0.21$ j. $\frac{44}{100} = 0.44$

13. $0.1 = \frac{1}{10}$ amd $\frac{1}{10}$ means 1 divided into 10 equal parts

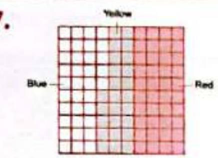


14. $\frac{5}{10} = 0.5$

15. $\frac{9}{10} = 0.9$

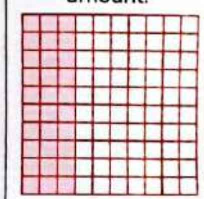
16.


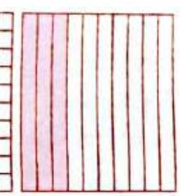
0.2 of the strip has stars.

17.


Yellow part = 0.25

18. Adel is correct ، 0.30 and 3 tenths (0.3) are representing the same amount.


Aisha


Adel

19. Length of the paper clip = 5 cm.

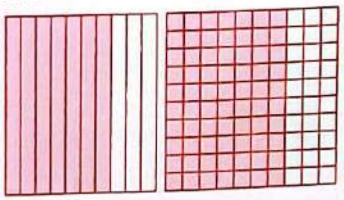
Fraction : $\frac{5}{100}$ m

Decimal : 0.05 m

20.

0.70 is equal to 0.7

Because they represent the same amount



0.7 0.70

21. The error is $0.20 \neq \frac{2}{100}$

because $\frac{2}{100} = 0.02$ (not 0.20)

Answers of multiple choices questions

1.	B	**2.**	A	**3.**	C
4.	B	**5.**	D	**6.**	B
7.	C	**8.**	C	**9.**	B

Exercise 18

1. **a.** 30 **b.** 9

c. 500 **d.** 8

e. For example :

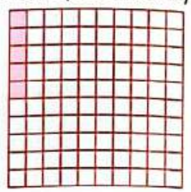
5 in the hundredths place is 0.05 and 5 in the tenths place is 0.5

$0.05 = \frac{5}{100}$, $0.5 = \frac{5}{10}$

and we know that $\frac{5}{100} < \frac{5}{10}$

Also :

0.05 represented by



and 0.5 represented by

We notic that 0.05 < 0.5

2. **a.** 7.98 **b.** 0.29 **c.** 5.34

d. 0.67 **e.** 1.04

3. **a.** 0.3 or $\frac{3}{10}$ **b.** 0.05 or $\frac{5}{100}$

c. 9 **d.** Tenths

e. Ones **f.** Hundredths

4. **a.** ✓ **b.** ✓ **c.** ✗ **d.** ✗

5. **a.** 1.2 **b.** 2.36 **c.** 1.1

d. 2.54 **e.** 0.15 **f.** 3.22

g. 1.1 **h.** 1.25

6. **a.** 5.51 **b.** 2.07 **c.** 7.09

d. 5.82 **e.** 9.43 **f.** 4.07

g. 0.47

7. **a.** Four and fifty-three hundredths.

b. Forty - eight hundredths.

c. Seven and eight hundredths.

d. Three and seventy- one hundredths.

e. Two and thirteen hundredths.

f. Four and two hundredths.

g. Seven and thirty - seven hundredths.

h. Two and nine hundredths.

8. **a.** 3 + 0.7 + 0.08 **b.** 2 + 0.04

c. 2 + 0.50 **d.** 1 + 0.1 + 0.08

e. 5 + 0.6 + 0.08 **f.** 6 + 0.1 + 0.04

9. **a.** 4 Ones , 5 Tenths , 2 Hundredths

b. 8 Ones , 1 Hundredth

c. 7 Ones , 3 Tenths , 4 Hundredths.

d. 1 Tenth , 4 Hundredths

e. 6 Tenths , 9 Hundredths

f. 7 Ones , 6 Tenths , 1 Hundredth

10. **a.** **Word form :**

Five and three hundredths

Unit form :

5 Ones , 3 Hundredths

Expanded form : 5 + 0.03

b. **Standard form :** 3.78

Unit from : 3 Ones , 7 Tenths , 8 Hundredths

Expanded form : 3 + 0.7 + 0.08

c. **Standard form :** 7.63

Word from : Seven and sixty-three hundredths

Expanded form : 7 + 0.6 + 0.03

d. **Standard form :** 5.17

Word form :

Five and seventeen hundredths

Unit form :

5 Ones , 1 Tenth , 7 Hundredths

e. **Word form :**

Fifteen and nine tenths

Unit form :

1 Ten , 5 Ones , 9 Tenths

Expanded form : 10 + 5 + 0.9

f. **Standard form :** 16.06

Unit from :

1 Ten , 6 Ones , 6 Hundredths

Expanded form : 10 + 6 + 0.06

g. **Standard from :** 5.9

Word form :

Five and nine tenths

Expanded form : 5 + 0.9

h. **Standard form :** 20.08

Word form :

Twenty and eight hundredths

Unit form :

2 Tens , 8 Hundredths

11. **a.** **Standard form :** 2.19

Word form :

Two and nineteen hundredths

Unit form :

2 Ones , 1 Tenth , 9 Hundredths

Expanded form : 2 + 0.1 + 0.09

b. **Standrd form :** 0.33

Word form :

Thirty-three hundredths

Unit form :

3 Tenths , 3 Hundredths

Expanded form : 0.3 + 0.03

c. **Standrd form :** 4.58

Word form :

Four and fifty-eight hundredths

Unit form : 4 Ones , 5 Tenths , 8 Hundredths

Expanded form : 4 + 0.5 + 0.08

d. **Standard form :** 4.10 = 4.1

Word form :

Four and one tenth

Unit form : 4 Ones , 1 Tenth

Expanded form : 4 + 0.1

e. **Standrd form :** 1.03

Word form :

One and three hundredths

Unit form :

1 One , 3 Hundredths

Expanded form : 1 + 0.03

12. a. 3 Tens , 2 Tenths , 30.2 , 30 + 0.20

b. 4 + 0.05 , 4 Ones , 5 Hundredths

c. 7.15 , 7 Ones , 1 Tenth , 5 Hundredths

d. 3.23 , 3 Ones , 23 Hundredths

e. 8.13 , 8 + 0.1 + 0.03

13. a. 0.7 b. 0.09 c. 22.35

d. 18.6 e. 0.2 f. 9

g. 7 , 0.4 h. 6.3 i. 38.6

j. 0.69 k. 1 , 0.04 l. 125.15

m. 0.4 n. 3.33

14. 3.4 , 8.47 (Answers my vary)

15. 2.68

Answers of multiple choice questions

1.	B	**2.**	B	**3.**	C
4.	B	**5.**	C	**6.**	A
7.	C	**8.**	D	**9.**	C
10.	D	**11.**	B	**12.**	D

Concept 2 — Decimals and Fractions

Exercise 19

1. a. $\frac{9}{10}$, 0.9 b. $\frac{6}{10}$, 0.6

c. $\frac{7}{10}$, 0.7 d. $\frac{1}{10}$, 0.1

e. $\frac{38}{100}$, 0.38 f. $\frac{6}{100}$, 0.06

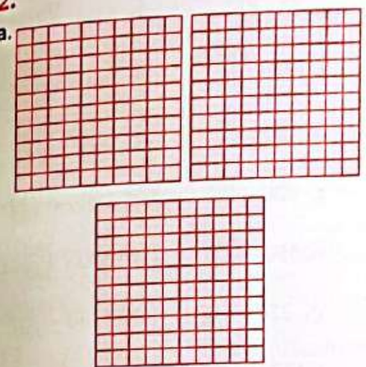
g. $\frac{65}{100}$, 0.65 h. $\frac{10}{100}$, 0.10

i. $1\frac{19}{100}$, 1.19 j. $2\frac{47}{100}$, 2.47

k. $3\frac{3}{10}$, 3.3 l. $2\frac{40}{100}$, 2.40

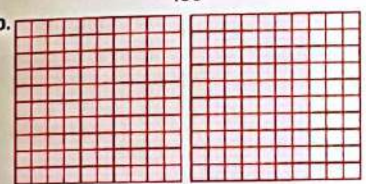
2.

a.



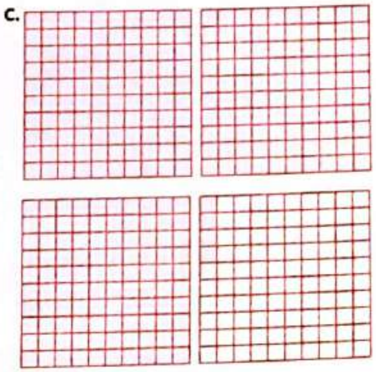
$2\frac{93}{100}$

b.



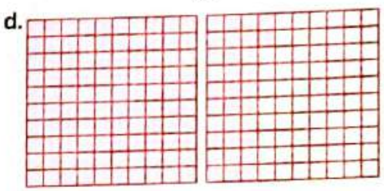
$1\frac{70}{100}$

c.



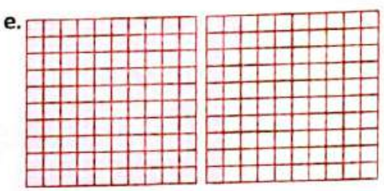
$3\frac{4}{100}$

d.



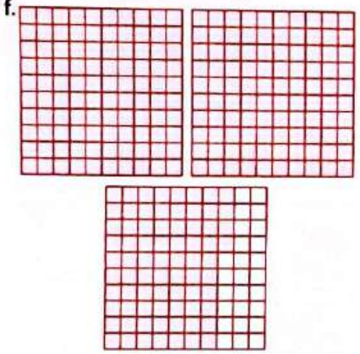
$1\frac{32}{100}$

e.



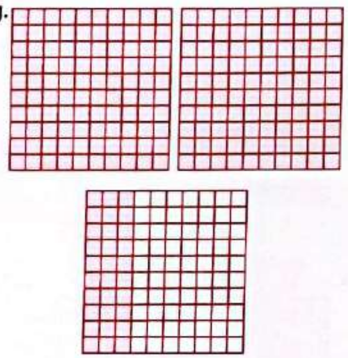
$1\frac{12}{100}$

f.



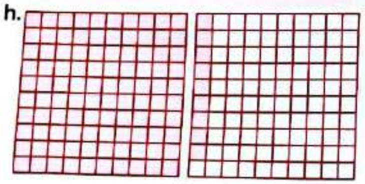
$2\frac{74}{100}$

g.



$2\frac{30}{100}$

h.



$1\frac{9}{100}$

3. a. $7\frac{6}{10}$, $\frac{76}{10}$ b. $3\frac{4}{10}$ or $\frac{34}{10}$

c. $10\frac{5}{100}$ or $\frac{105}{100}$ d. $2\frac{2}{100}$ or $\frac{202}{100}$

e. $2\frac{20}{100}$, $\frac{220}{100}$ f. $5\frac{97}{100}$ or $\frac{597}{100}$

g. $4\frac{79}{100}$ or $\frac{479}{100}$ h. $6\frac{28}{100}$ or $\frac{628}{100}$

i. $3\frac{27}{100}$ or $\frac{327}{100}$

4. a. 30 , $\frac{30}{10}$ b. 10 , $\frac{10}{10}$

c. 40 , $\frac{40}{10}$ d. 13 , $\frac{13}{10}$

e. 15 , $\frac{15}{10}$ f. 23 , $\frac{23}{10}$

g. 51 , $\frac{51}{10}$ h. 174 , $\frac{174}{10}$

i. 108 , $\frac{108}{10}$ j. 246 , $\frac{246}{10}$

5. a. 100 , $\frac{100}{100}$ b. 300 , $\frac{300}{100}$

c. 500 , $\frac{500}{100}$ d. 1900 , $\frac{1900}{100}$

e. 150 , $\frac{150}{100}$ f. 230 , $\frac{230}{100}$

g. 370 , $\frac{370}{100}$ h. 1080 , $\frac{1080}{100}$

i. 1320 , $\frac{1320}{100}$ j. 40 , $\frac{40}{100}$

k. 333 , $\frac{333}{100}$ l. 415 , $\frac{415}{100}$

6. 18 tenths = $\frac{18}{10}$ or $1\frac{8}{10}$ (as a fraction)

18 tenths = 1.8 (as a decimal)

7. 825 hundredths = 8.25 (as a decimal)

825 hundredths = $\frac{825}{100}$ or $8\frac{25}{100}$ (as a fraction)

8. a. 37 b. 520 c. 19.8

d. $\frac{291}{100}$ or $2\frac{91}{100}$ e. 374

f. 895 g. 3.9 h. 214

9. a. ✗ b. ✓ c. ✓ d. ✗

e. ✓ f. ✗ g. ✓

10.

Decimal : 0.6

Fraction : $\frac{6}{10}$

11. • 50.1 cm. • (501 tenths) cm

12. • 1.4 liters • (14 tenths) liters

13. • 38 students • 38 hundredths

14. Mr. Marawan has $3\frac{85}{100}$ = 3.85 boxes of crayons

Answers of multiple choice questions

1. A 2. B 3. C
4. B 5. D 6. C
7. B 8. C 9. C
10. B

Exercise 20

1. a. $\frac{80}{100}$, 0.80 b. $\frac{3}{10}$, 0.3

c. $\frac{50}{100}$, 0.50 d. $\frac{1}{10}$, 0.1

e. $\frac{9}{10} = \frac{90}{100}$, 0.9 = 0.90

f. $\frac{2}{10} = \frac{20}{100}$, 0.2 = 0.20

g. $\frac{7}{10} = \frac{70}{100}$, 0.7 = 0.70

h. $\frac{6}{10} = \frac{60}{100}$, 0.6 = 0.60

2. a. equivalent
b. not equivalent
c. not equivalent
d. not equivalent
e. not equivalent
f. equivalent

3. a. 0.80 b. 0.70 c. 0.9
d. 0.20 e. 0.50 f. 0.1
g. 0.4 h. 0.60

4. a. equivalent
b. not equivalent
c. equivalent
d. not equivalent
e. equivalent
f. not equivalent

5. a. $\frac{70}{100}$ b. $\frac{8}{10}$ c. $\frac{90}{100}$

d. $\frac{40}{100}$ e. $\frac{1}{10}$ f. $\frac{2}{10}$

g. $\frac{30}{100}$ h. $\frac{5}{10}$

6. a. $\frac{10}{100}$, 0.10 b. $\frac{7}{10}$, 0.7
 c. $\frac{60}{100}$, 0.60 d. $\frac{40}{100}$, 0.40
 e. $\frac{3}{10}$, 0.3 f. $\frac{90}{100}$, 0.90
 g. $\frac{100}{100}$, 1.00 h. $1\frac{40}{100}$, 1.40
 i. $2\frac{10}{100}$, 2.10 j. $3\frac{3}{10}$, 3.3
 k. $4\frac{20}{100}$, 4.20 L. $5\frac{7}{10}$, 5.7

7. a. $\frac{5}{10} = \frac{50}{100}$ b. $\frac{20}{100} = \frac{2}{10}$
 c. $\frac{4}{10} = \frac{40}{100}$ d. $\frac{200}{100} = \frac{20}{10}$
 e. $\frac{70}{100} = \frac{7}{10}$ f. $\frac{80}{10} = \frac{800}{100}$
 g. $\frac{3}{10} = \frac{30}{100}$ h. $\frac{60}{100} = \frac{6}{10}$
 i. $\frac{7}{10} = \frac{70}{100}$ j. $\frac{900}{100} = \frac{90}{10}$
 k. $\frac{8}{10} = \frac{80}{100}$ L. $\frac{10}{100} = \frac{1}{10}$

8. a. ✔ b. ✘ c. ✘ d. ✘
 e. ✔ f. ✔ g. ✔

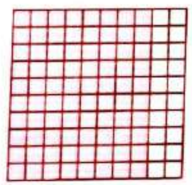
9. 0.50 , $\frac{50}{100}$

10. He was wrong. Because ,
 5.20 = 5.2 [equivalent decimals]

11. a. one tenth → $\frac{1}{10}$ → 0.1
 b. 3 hundredths → $\frac{3}{100}$ → 0.03
 c. 7 tenths → $\frac{7}{10}$ → 0.7
 d. 4 tenths → $\frac{4}{10}$ → 0.4
 e. 42 hundredths → $\frac{42}{100}$ → 0.42
 f. one and 6 tenths → $1\frac{6}{10}$ → 1.6

12.

$0.8 = \frac{8}{10} = \frac{80}{100}$



$0.8 = \frac{80}{100} = \frac{8}{10}$

Answers of multiple choice questions

1. A 2. D 3. C
4. D 5. B 6. B
7. C 8. D 9. A
10. C 11. D 12. C

Exercise 21

1. a. $0.2 > 0.16$ b. $0.6 = 0.60$
 c. $0.90 > 0.7$ d. $0.28 < 0.30$
 e. $0.3 > 0.03$ f. $0.77 > 0.67$

2. a. $0.34 < 0.4$

Ones	Decimal point	Tenths	Hundredths
0	.	3	4
0	.	4	0

b. $0.45 > 0.04$

Ones	Decimal point	Tenths	Hundredths
0	.	4	5
0	.	0	4

c. $0.23 < 0.3$

Ones	Decimal point	Tenths	Hundredths
0	.	2	3
0	.	3	0

d. $0.54 > 0.45$

Ones	Decimal point	Tenths	Hundredths
0	.	5	4
0	.	4	5

e. $0.62 > 0.26$

Ones	Decimal point	Tenths	Hundredths
0	.	6	2
0	.	2	6

f. $0.80 > 0.09$

Ones	Decimal point	Tenths	Hundredths
0	.	8	0
0	.	0	9

g. $0.73 > 0.69$

Ones	Decimal point	Tenths	Hundredths
0	.	7	3
0	.	6	9

h. $0.10 = 0.1$

Ones	Decimal point	Tenths	Hundredths
0	.	1	0
0	.	1	0

i. $0.49 > 0.04$

Ones	Decimal point	Tenths	Hundredths
0	.	4	9
0	.	0	4

j. $0.27 < 0.7$

Ones	Decimal point	Tenths	Hundredths
0	.	2	7
0	.	7	0

3. a. $>$ b. $>$ c. $>$
 d. $=$ e. $>$ f. $>$
 g. $<$ h. $<$ i. $<$
 j. $>$ k. $<$ L. $>$
 m. $>$ n. $>$ o. $>$
 p. $<$ q. $>$ r. $>$

4. a. $<$ b. $>$ c. $>$
 d. $>$ e. $>$ f. $<$
 g. $<$ h. $<$ i. $>$
 j. $=$ k. $<$ L. $>$
 m. $<$ n. $>$ o. $<$
 p. $>$ q. $>$ r. $<$
 s. $>$ t. $<$

5. a. ✘ b. ✔ c. ✔ d. ✘
 e. ✔ f. ✘ g. ✔ h. ✔
 i. ✔ j. ✔ k. ✘ L. ✘

6. 3.52 , 3.3 , 3.9

7. 2.1 , 0.7 , 2.03

8. Hatem is wrong because Ezz's model represents 0.4 and Hatem's model represents 0.37 and 0.4 > 0.37

9. The faster runner is Petra
The time for Petra is 6.45 seconds

10. Youssef ran the greater distance because 1.68 > 1.65

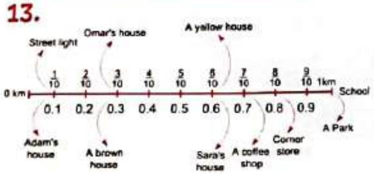
11.

Fruit	Ones	Decimal Point	Tenths	Hundredths
Figs	1	•	3	0
Mangoes	2	•	0	1
Plums	1	•	2	1
Pomegranates	2	•	2	5

a. Plums
b. Pomegranates
c. Figs , Mangoes and Pomegrantes
d. Plums , Figs
e. Pomegranates > Mangoes [Answers may vary]
f. Plums < Figs [Answers may vary]

12. The first box is the greater because 0.5 > 0.25

13.



a. Sara's house b. Coffee shop
c. Omar d. Sara e. $\frac{2}{10}$ km

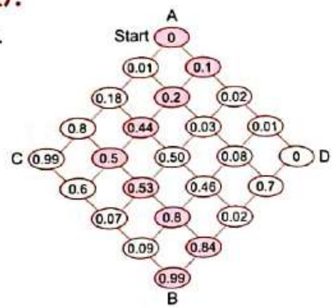
14. The second bottle has more olive oil because 0.73 > 0.5

15. Amal eat more because 0.6 > 0.4

16. Badr walking greater distance to go to a supermarket because 0.44 > 0.40

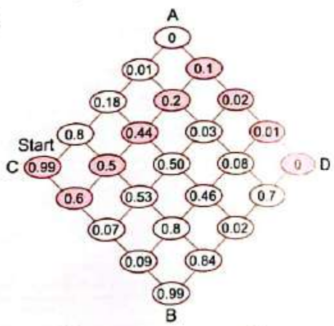
17.

1.



[Answers may vary]

2.



[Answers may vary]

Answers of multiple choice questions

1. A	2. B	3. B
4. A	5. C	6. D
7. C	8. B	9. A
10. B	11. D	12. C

Exercise 22

1. a. 60 b. 30 c. 100
d. 10 e. 10 f. 10
g. 10 h. 5

2. a. 3 "by Dividing by 10 the result is 3"
b. 100 "by Multiplying by 10 the result is 100"
c. 20 "by Multiplying by 10 the result is 20"
d. 9 "by Dividing by 10 the result is 9"
e. 5 "by Dividing by 10 the result is 5"
f. 10 "by Dividing by 10 the result is 10"
g. 10 "by Dividing by 10 the result is 10"
h. 400 "by multiplying by 10 the result is 400"
i. 10 "by Dividing by 10 the result is 10"
j. 80 "by Multiplying by 10 the result is 80"

3. a. $\frac{45}{100}$ b. $\frac{95}{100}$
c. $\frac{50}{100}$ or $\frac{5}{10}$ d. $\frac{75}{100}$
e. $\frac{12}{10} = 1\frac{2}{10}$ f. $\frac{93}{100}$
g. $2\frac{72}{100}$ h. $1\frac{80}{100}$ or $1\frac{8}{10}$
i. $5\frac{107}{100} = 6\frac{7}{100}$

4. a. 60 , 83 b. 6 , 13
c. 30 , $\frac{38}{100}$ d. 90 , $\frac{113}{100}$
e. 50 , $\frac{82}{100}$ f. 60 , $\frac{142}{100}$

5. a. $\frac{95}{100}$ b. $\frac{91}{100}$
c. $\frac{63}{100}$ d. $\frac{126}{100} = 1\frac{26}{100}$
e. $\frac{100}{100} = 1$ f. $\frac{90}{100}$ or $\frac{9}{10}$
g. $\frac{100}{100} = 1$ h. $\frac{100}{100} = 1$
i. $\frac{101}{100} = 1\frac{1}{100}$ j. $\frac{104}{100} = 1\frac{4}{100}$
k. $7\frac{92}{100}$ l. $2\frac{35}{100}$
m. $\frac{33}{100}$ n. $6\frac{35}{100}$
o. $16\frac{47}{100}$ p. $11\frac{42}{100}$

6. a. ✗ b. ✗ c. ✗
d. ✓ e. ✓ f. ✗

7. What she had $= \frac{8}{10} + \frac{25}{100} = \frac{105}{100}$
$= 1\frac{5}{100}$ meter.

8. What he has = $\frac{5}{10} + \frac{65}{100} = \frac{115}{100}$

$= 1\frac{15}{100} > 1$

Yes, he has more than 1 liter.

9. What she used in all = $\frac{6}{10} + \frac{25}{100}$

$= \frac{85}{100} = \frac{17}{20}$

10. Ali has = $\frac{2}{10} + \frac{60}{100} = \frac{80}{100} = \frac{8}{10}$ liter.

The empty of the vessel

$= 1 - \frac{8}{10} = \frac{2}{10}$ liter = 2 tenths liter

= 20 hundredths liter.

11. What Laila read = $\frac{3}{10} + \frac{65}{100} = \frac{95}{100}$ of her book.

12. The perimeter = $(\frac{3}{10} + \frac{3}{10})$

$+ (\frac{12}{100} + \frac{12}{100})$

$= \frac{6}{10} + \frac{24}{100} = \frac{84}{100}$ cm

Answers of multiple choice questions

1. C 2. C 3. A
4. B 5. D 6. B
7. A 8. B 9. A

Unit 10 Assessments

Model 1

1. a. A b. B c. B

2. a. $\frac{75}{100}$

b. three and sixteen hundredths.

c. 57

3. a. → 2 b. → 4
c. → 1 d. → 3
e. → 5

4. a. ✗ b. ✓ c. ✗

5. The distance = $\frac{7}{10} + \frac{36}{100}$

$= \frac{106}{100} = 1.06$ km

Model 2

1. a. B b. C c. A

2. a. tenths b. 6.08 c. 2,170

3. a. → 3 b. → 4
c. → 5 d. → 2
e. → 1

4. a. ✗ b. ✓ c. ✗

5. What Mostafa ate = 0.7

What his brother ate = $\frac{25}{100} = 0.25$

Then, Mostafa ate more than his brother.

Answers of unit 11

Data with Fractions

» **Concept 1 :** Creating and Analyzing Graphs

Concept 1 Creating and Analyzing Graphs

Exercise 23

1.

Favorite activities					
Activity	Drawing	Crafts	Sports	Reading	Singing
Number	4	5	9	7	3

a. Sports b. Singing
c. 7 d. 4
e. Drawing and Crafts.

2.

a. Lion b. Bear
c. 13 d. Elephant and Giraffe
e. 13 – 4 = 9

3.

[1] What is the most favorite flavore of ice cream ?
[2] What is the least favorite flavore of ice cream ?
[Answers may vary]

4.

a. 90 pounds , April
b. 80 pounds , February
c. 80 + 50 = 130 pounds
d. 40 + 50 + 70 + 90 + 50 = 300 pounds
e. 60 + 80 + 70 + 20 + 30 = 260 pounds
f. March
g. Hany saved the most , Enas saved the least.
h. 90 – 20 = 70 pounds

5.

a. National , 2006
b. 20 + 200 = 220 visitors
c. 100 + 200 + 20 = 320 visitors
d. 220 – 100 = 120 visitors
e. Arts in 2006 and History in 2005
f. [100 + 200 + 20] – [220 + 20 + 80]
= 320 – 320 = zero

6.

a. Riyadh b. 15
c. 20 – 5 = 15 d. 25 – 10 = 15

7.

a. Primary 2 b. Primary 3
c. 100 – 20 = 80 students
d. 60 + 20 = 80 students
e. [60 + 90] – [90 + 50] = 150 – 140
= 10 students
f. 35 + 120 + 170 + 190 + 120
= 635 students
g. Because we compare between 5 grades.
[Answer may vary]

8.

Favorite sports		
Sport	Boys	Girls
Football	9	3
Basketball	5	2
Soccer	4	13
Tennis	6	6

First :

a. 3 b. 12
c. Soccer d. Basketball

Second :

a. T b. T
c. F d. F

9.

a. 10 b. 4
c. Wed and Sun.
d. Girls study more than boys by [420 – 385] = 35 min.
e. Fri

10.

a. 70 – 50 = 20 girls.
b. 2 c. 2001
d. Boys play sports than girls by [230 – 195 = 35 boys]

11.

Table 1 : Yes, because we compare between Max. and Min temperatures.

Table 2 : No, because it is not comparing between 2 items.

Table 3 : Yes, because it is a compare between boys and girls.

12.

a. bar graph , pictograph.
b. double bar graph.
c. double bar graph.

Answers of multiple choices questions

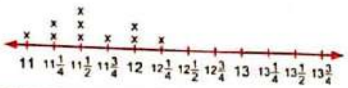
1. A 2. B 3. B
4. A 5. B 6. A
7. B 8. B

Exercise 24

First Line plot

1.

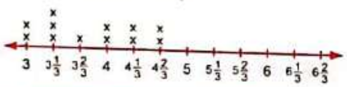
a.



Key Each × represents 1 child

1. Weights of children in kg
2. $11\frac{1}{2}$ kg
3. 11 , $11\frac{3}{4}$ and $12\frac{1}{4}$ kg

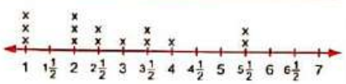
b.



Key Each × represents 1 tree

1. Heights of trees in meters
2. $3\frac{1}{3}$ m 3. $3\frac{2}{3}$ m

2.



Key Each × represents 1 child

ages of nursey's kids

a. 3 children **b.** 1 child

c. 8 children **d.** 3 − 1 = 2 children

e. 14 children

3.

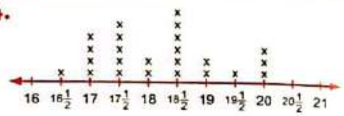
a. **Line plot** : weight of our school bags , minutes spent playing outside , our shoe sizes , number of people in our families , our heights and distance from home to school.

b. Weight of our school bags in kilograms

Key Each × represents 1 bag

[Answer may vary]

4.



Key Each × represents 1 student

a. 24 students

b. Least mark is $16\frac{1}{2}$, highest mark is 20

c. $18\frac{1}{2}$ **d.** 2 students

e. 5 − 3 = 2 students

f. Most of students got less than 19.

[Answer may vary]

5.

Distance from home to school in kilometers

Key Each × represents 1 student

a. 11 students

b. $\frac{1}{5}$ km

c. $\frac{5}{5}$ km (1 km) **d.** $\frac{4}{5}$ km

e. $\frac{1}{5}$ km and $\frac{3}{5}$ km

f. Most of students live far from the school.

[Answer may vary]

6. Weight of containers in liters

Key Each × represents 1 container

a. $\frac{3}{7}$ L **b.** $\frac{2}{7}$ L and $\frac{5}{7}$ L

c. 14 containers **d.** 6 containers

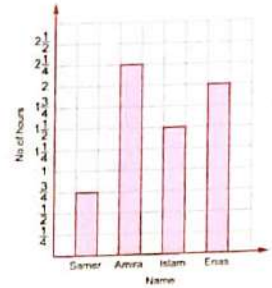
e. 4 containers

f. Most of containers hold more than $\frac{1}{2}$ liter.

[Answer may vary]

Second Breaking the bar

7.



a. Amira **b.** Samer

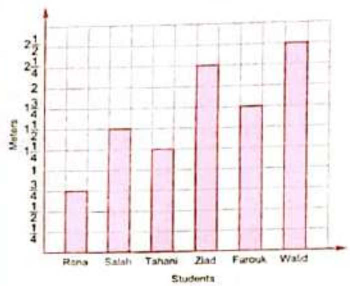
c. $1\frac{1}{4}$ hours **d.** $6\frac{1}{2}$ hours

e. $\frac{3}{4}$ hour

8.

Part 1

Covered distance by the ball



Question 1 :

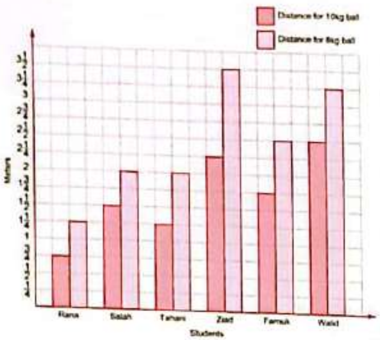
Who rolled the farthest ? Walid

Question 2 :

What is the difference between Ziad and Rana ? $1\frac{1}{2}$ m

Part 2

a.



b. Rana and Salah

c. Ziad

d. 6 m

e. They would roll the ball farther than the roll of the 8 kg ball.

f. The total distance of Salah and Tahani $= 1\frac{1}{2} + 2 + 1\frac{1}{4} + 2 = 6\frac{3}{4}$ m

(Answer may vary)

9.

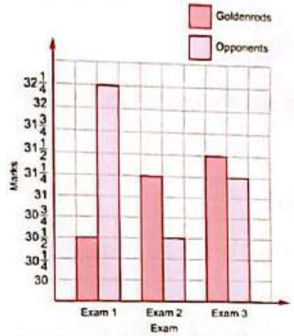
a. Answers may vary

b. Sample answer: Temperatures in different cities.

Temp \ City	Cairo	Alex	Port Said	Souhag	Luxor
High	18	21	22	17	23
Low	7	10	12	8	10

10.

The suitable type of graph is a double bar graph, because it compares two related sets of data.



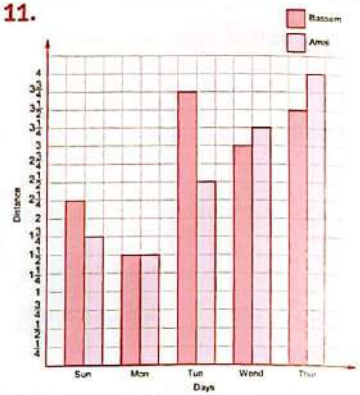
a. Goldenrods

b. Goldenrods

c. $\frac{3}{4}$ mark

d. $62\frac{3}{4}$ marks

11.



a. Tuesday

b. Monday

c. Sunday

d. 13 kilometers

e. 14 kilometers

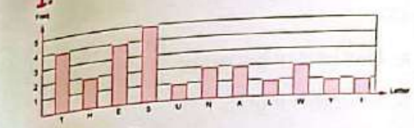
f. Wednesday

Answers of multiple choice questions

1. C
2. D
3. B
4. C
5. C
6. A

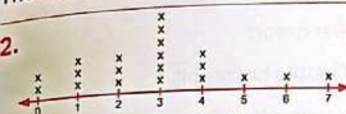
Exercise 25

1.



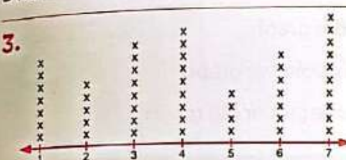
The letter S

2.



3 had the highest frequency.

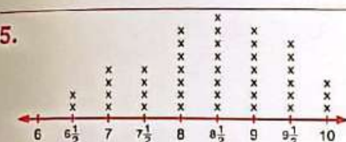
3.



27 times

4.

5.

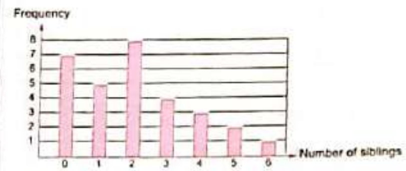


• Analyze by yourself.

• Write by yourself.

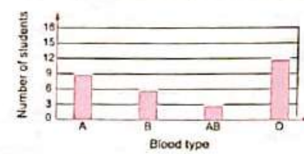
6.

Number of siblings		
Number	Tally	Total
0	𝍸 II	7
1	𝍸	5
2	𝍸 III	8
3	IIII	4
4	III	3
5	II	2
6	I	1



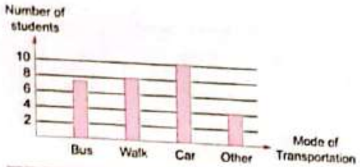
7.

Blood types		
Blood type	Tally	Number of students
A	𝍸 IIII	9
B	𝍸 I	6
AB	III	3
O	𝍸 𝍸 II	12



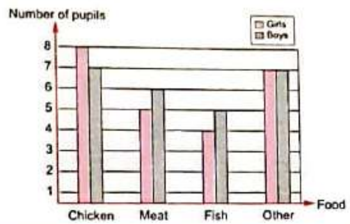
8.

How we get to school		
Mode of Transportation	Tally	Total
Bus	𝍸 II	7
Walk	𝍸 III	8
Car	𝍸 𝍸	10
Other	IIII	4



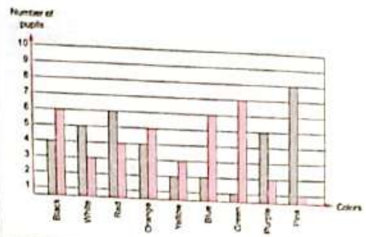
9.

Our favorite food		
Food	Girls	Boys
Chicken	8	7
Meat	5	6
Fish	4	5
Other	7	7



10.

Colors	Total	
	Boys	Girls
Black	6	4
White	3	5
Red	4	6
Orange	5	4
Yellow	3	2
Blue	6	2
Green	7	1
Purple	2	5
Pink	1	8



11.

a. Line plot or bar graph

b. Double bar graph

c. Bar graph

d. Bar graph

e. Double bar graph

f. Bar graph

g. Bar graph or line plot

h. Bar graph

i. Double bar graph

j. Line plot or bar graph

Answers of multiple choice questions

1. C **2.** A **3.** B

4. C **5.** B **6.** D

7. C **8.** B

Unit 11 Assessments

Model 1

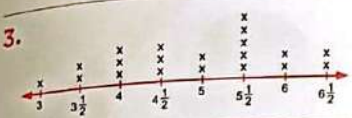
1. **a.** C **b.** C **c.** C

2. **a.** Yasmin

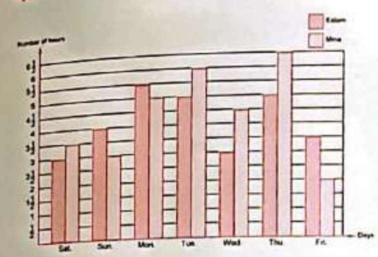
b. $20 - 10 = 10$ marks

c. Jody

3.



4.



Model 2

1. **a.** C **b.** C **c.** C

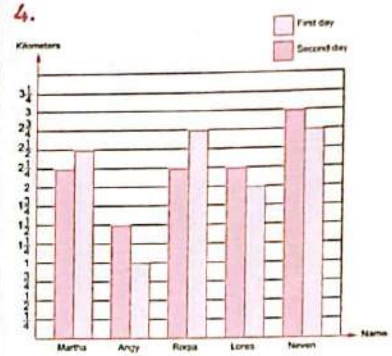
2. **a.** $15 + 30 + 20 = 65$ girls

b. 25 boys **c.** pizza

3. **a.** 18 **b.** 9

c. yellow **d.** $9 - 4 = 5$

4.



a. Roqia and Lores

b. $2\frac{3}{4} - 1 = 1\frac{3}{4}$ km

Answers of Cumulative Assessments

Unit 7

Cumulative Assessment 1

1.
a. 5 R 4 b. 7 R 6 c. 9 R 4
d. 9 R 1 e. 6 R 3 f. 9 R 0
g. 12 R 0 h. 24 R 0

2.
a. 5 b. 5 , 5 c. 6
d. 3 e. 6

3.
64 ÷ 3 = 21 R 1
He can give each son 21 pounds and the remainder is 1 pound

4.
a. C b. A c. C
d. A e. C

Cumulative Assessment 2

1.
a. 200 b. 1,000 c. 6,000
d. 12 , 2 e. 30 f. 100
g. 500 h. 2

2.
a. A b. D
c. B d. B

3.
The number of tourists = 320 ÷ 8
= 40 tourists

4.

a.	b.
2	3
20	30
200	300
2,000	3,000

c.	d.
4	5
40	50
400	500
4,000	5,000

Cumulative Assessment 3

1.

a. 84 ÷ 3

3	3 × 20 = 60	3 × 8 = 24
	20	8

60 + 24 = 84 R 0
So , 84 ÷ 3 = 20 + 8 = 28

b. 75 ÷ 5

5	5 × 10 = 50	5 × 5 = 25
	10	5

50 + 25 = 75 R 0
So , 75 ÷ 5 = 10 + 5 = 15

c. 74 ÷ 4

4	4 × 15 = 60	4 × 3 = 12
	15	3 R 2

60 + 12 + 2 = 74
So , 74 ÷ 4 = 15 + 3 R 2 = 18 R 2

d. 216 ÷ 6

6	6 × 30 = 180	6 × 6 = 36
	30	6

180 + 36 = 216 R 0

So , 216 ÷ 6 = 30 + 6 = 36

2.

a. 26 b. 113 R 3

c. 400 d. 131

3.

a. A b. B

c. D d. B

Cumulative Assessment 4

1.

a. 89 ÷ 3

3	89	20
–	60	
	29	9
–	27	
	2	

So , 89 ÷ 3 = 20 + 9 R 2 = 29 R 2

b. 628 ÷ 4

4	628	100
–	400	
	228	50
–	200	
	28	7
–	28	
	0	

So , 628 ÷ 4 = 100 + 50 + 7 = 157

c. 2,374 ÷ 6

6	2,374	300
–	1,800	
	574	80
–	480	
	94	10
–	60	
	34	5
–	30	
	4	

So , 2,374 ÷ 6 = 300 + 80 + 10 + 5 R 4

= 395 R 4

2.

a. 835 ÷ 5

	167
5	835
–	5
	33
–	30
	35
–	35
	0

b. 4,258 ÷ 7

	0 608 R 2
7	4,258
–	42
	058
–	56
	2

c. 6,660 ÷ 9

	0 740
9	6,660
–	63
	36
–	36
	0

3.

a. 162 b. 167 ; 6

c. 184 d. 0

e. 1,500 f. 9 , 2

4.

a. ✗ b. ✓ c. ✓

d. ✗ e. ✗ f. ✗

Cumulative Assessment 5

1.

a. B b. C c. A

d. C e. C

2.

a. 1,686 ÷ 6 = 281 b. 307 , 1

c. 50 d. 1,088

e. 641 f. 300 , 400

3.

The share of each one = 358 ÷ 2

= 179 L.E.

4.

a. 318 ÷ 6 = 53

b. 294

294 ÷ 7 = 42

Unit 8

Cumulative Assessment 6

1.

a. ✗ b. ✓ c. ✓

d. ✓ e. ✓

2.

a. A b. C c. D

d. C e. B

3.

a. 877 R 2 b. 2,360

c. 702 d. 153,767

e. 324 f. 10

g. 250 h. 685,088

4.

a. > b. > c. < d. <

Cumulative Assessment 7

1.
a. 13
b. 29
c. 3
d. 900 R 2
e. 6
f. 10

2.
a. 6
b. 8
c. 13
d. 22
e. 33
f. 15

3.
a. C
b. A
c. B
d. D
e. A
f. B

4.
The number of microbuses
= (330 – 154) ÷ 8 = 176 ÷ 8
= 22 microbuses

Unit 9

Cumulative Assessment 8

1.
a. C b. D c. A d. B

2.
a. ✗ b. ✗ c. ✓ d. ✓

3.
a. $\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$ $\frac{3}{4} = \frac{1}{4} + \frac{2}{4}$
b. $\frac{4}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$ $\frac{4}{5} = \frac{1}{5} + \frac{3}{5}$

4.
The number of groups = 288 ÷ 8
= 36 groups.

Cumulative Assessment 9

1.
a. C b. A c. C
d. C e. A f. D

2.
a. $\frac{47}{8}$ b. $\frac{23}{7}$ c. $\frac{23}{9}$

3.
a. $2\frac{1}{3}$ b. $3\frac{3}{5}$ c. $6\frac{3}{4}$

4.
a. ⟶ 3
b. ⟶ 4
c. ⟶ 1
d. ⟶ 2

Cumulative Assessment 10

1.
a. $7\frac{5}{5} = 8$
b. $2\frac{2}{7}$
c. $3\frac{4}{4} - 2\frac{1}{4} = 1\frac{3}{4}$
d. $3\frac{10}{8} = 4\frac{2}{8}$
e. $\frac{3}{9}$
f. $2\frac{5}{5} = 3$

2.
a. $4\frac{4}{7}$ b. 8 c. $\frac{1}{6}$
d. 7 e. 4 f. 14

3.
a. (1) 800 (2) 528
b. (1) 26 (2) 42

4. The left = $5\frac{3}{4} - 3\frac{1}{4} = 2\frac{2}{4}$ cakes.

5.
a. ✗ b. ✓ c. ✓
d. ✗ e. ✓ f. ✓

Cumulative Assessment 11

1.
a. > b. < c. > d. >
e. < f. > g. < h. <

2.
a. C b. C c. B d. D e. A

3.
a. The ascending order is
$\frac{1}{10}, \frac{3}{10}, \frac{6}{10}, \frac{7}{10}, \frac{9}{10}$
b. The descending order is
$\frac{11}{3}, \frac{11}{4}, \frac{11}{5}, \frac{11}{7}, \frac{11}{8}$

4.
a. 544
b. 10 ,206
c. $\frac{9}{9} = 1$
d. 93 R 2

Cumulative Assessment 12

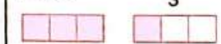
1.
a. 4 b. 16 c. 9

2.
a. $\frac{1}{2}$ ⟶ 3. $\frac{2}{4}$
b. $\frac{1}{4}$ ⟶ 4. $\frac{2}{8}$
c. $\frac{3}{4}$ ⟶ 2. $\frac{9}{12}$
d. $\frac{1}{3}$ ⟶ 1. $\frac{3}{9}$
e. $\frac{4}{6}$ ⟶ 5. $\frac{2}{3}$

3.
a. C b. C c. A d. C

4.
Sara $1\frac{1}{3}$

Adel $\frac{4}{3}$



$1\frac{1}{3} = \frac{4}{3}$

So

They eat the same amount.

Cumulative Assessment 13

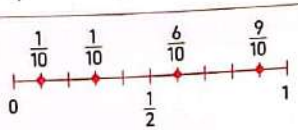
1.
a. > b. < c. >
d. > e. > f. <

2.

a. 113 R 3 b. 7,550 c. 33

d. $2\frac{1}{4}$ e. $7\frac{6}{7}$ f. 1,377

3.



a. closest to $\frac{1}{2}$ b. closest to 1

c. closest to zero d. closest to $\frac{1}{2}$

4.

a. $\frac{1}{7}, \frac{5}{6}, \frac{8}{8}$ b. $\frac{7}{7}, \frac{5}{6}, \frac{5}{10}, \frac{1}{9}$

5.

a. ✗ b. ✗ c. ✓

d. ✗ e. ✓ f. ✗

Cumulative Assessment 14

1.

a. $\frac{4}{6} = \frac{6}{9} = \frac{8}{12}$ b. $\frac{1}{2} = \frac{2}{4} = \frac{3}{6}$

c. $\frac{3}{9} = \frac{1}{3} = \frac{2}{6}$ d. $\frac{8}{14} = \frac{12}{21} = \frac{16}{28}$

e. $\frac{2}{10} = \frac{3}{15} = \frac{4}{20}$ f. $\frac{6}{10} = \frac{3}{5} = \frac{9}{15}$

(Answers may vary)

2.

a. A b. A c. C

d. C e. C

3.

a. ✓ b. ✗ c. ✗ d. ✓

4.

×3

$\frac{3}{4} = \frac{?}{12}$ $\frac{3}{4} = \frac{(9)}{12}$

×3

There are 9 choclate cake.

Cumulative Assessment 15

1. a. A b. C c. B d. D

2. a. $8\frac{3}{5}$ b. $6\frac{1}{5}$ c. 15 d. 16

3. a. > b. = c. > d. >

4. 6

5. a. $2 \times \frac{1}{4}$ b. $6 \times \frac{1}{5}$

c. $3 \times \frac{1}{9}$ d. $4 \times \frac{1}{10}$

Cumulative Assessment 16

1. a. C b. B c. B

d. D e. C

2. a. $4\frac{4}{8}$ b. $\frac{17}{5}$ c. $\frac{7}{9}$

d. 24 e. $\frac{4}{14} = \frac{6}{21} = \frac{8}{28}$

(Answers may vary)

3. $\frac{9}{10}$

4. $\frac{2}{8}$

Unit 10

Cumulative Assessment 17

1.

a. 0.08 b. 0.3 c. 0.15

d. 0.35 e. 0.01 f. 0.7

2.

a. $\frac{8}{10}$ b. $\frac{9}{100}$ c. $\frac{18}{100}$

d. $\frac{74}{100}$ e. $\frac{4}{10}$ f. $\frac{6}{100}$

3.

a. ✓ b. ✗ c. ✗

d. ✓ e. ✗

4.

a. $5\frac{2}{8}$ b. $4\frac{3}{5}$ c. $2\frac{2}{4}$

d. 9 e. 39

5. 3

Cumulative Assessment 18

1.

a. 0.4 , Tenths

b. 0.03 , Hundredths

c. 1 , Ones d. 200 , Hundreds

2.

a. Seven and eighteen hundredths

b. One and seventy-three hundredths

c. Six and two hundredths

3.

a. 5.62 b. 7.08 c. 4.74

4.

a. ✓ b. ✗ c. ✓

d. ✗ e. ✗ f. ✓

5.

a. $1\frac{7}{9}$ b. 7,376 c. 175

d. 14,110

Cumulative Assessment 19

1.

a. $1\frac{7}{10}$ b. $5\frac{24}{100}$ c. $11\frac{87}{100}$

d. $2\frac{5}{100}$ e. $14\frac{9}{10}$ f. $20\frac{23}{100}$

2.

a. 20 b. 370 c. 1,040

d. 7.9 e. 4.2 f. 735

3.

a. ⟶ 5 b. ⟶ 4

c. ⟶ 1 d. ⟶ 2

e. ⟶ 3

4. $\frac{5}{15}, \frac{5}{12}, \frac{5}{11}, \frac{5}{10}, \frac{5}{7}$

5. • 70.2 cm • 702 Tenths

Cumulative Assessment 20

1.

a. $\frac{30}{100}$ b. $\frac{7}{10}$ c. $\frac{50}{100}$

d. $\frac{9}{10}$ e. $\frac{80}{100}$ f. $\frac{1}{10}$

2.

a. A　b. D　c. A
d. C　e. D

3.

a. $\frac{8}{9}$　b. 219　c. 48
d. 9 R 5　e. $\frac{30}{100}$

4.

a. $3 + 0.7 + 0.09$
b. $6 + 0.04$　c. $4 + 0.8 + 0.09$

Cumulative Assessment 21

1.

a. >　b. <　c. >
d. >　e. =　f. <
g. <　h. >

2. a. ✔　b. ✔　c. ✔
d. ✘　e. ✘　f. ✔

3.

$18\frac{4}{6}$ cm

4.

Nermine

5.

a. ⟶ 4　b. ⟶ 3
c. ⟶ 1　d. ⟶ 2

Cumulative Assessment 22

1.

a. $5\frac{71}{100}$　b. $2\frac{91}{100}$　c. $9\frac{4}{5}$
d. $1\frac{26}{100}$　e. 14,257　f. 65 R 1

2.

a. 4
b. seven and twenty-seven hundredths
c. 9　d. $1\frac{2}{3}$　e. $6\frac{6}{9}$
f. Hundredths

3.

a. B　b. D　c. B
d. A　e. B

4.

$1\frac{5}{100}$ meter

Unit 11

Cumulative Assessment 23

1. a. D　b. B　c. A
d. B　e. C

2. a. ✘　b. ✔　c. ✘
d. ✘　e. ✔

3. $\frac{2}{9}, \frac{4}{9}, \frac{5}{9}, \frac{6}{9}, \frac{7}{9}$

4. a. 14　b. 16　c. Mango
d. Orange　e. Watermelon
f. 23　g. 6

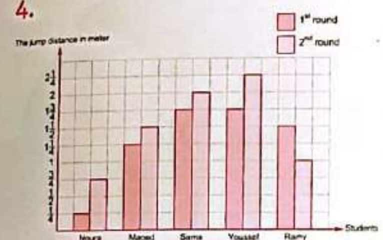
Cumulative Assessment 24

1. a. C　b. B　c. C
d. A　e. C　f. C

2. a. ✘　b. ✘　c. ✘
d. ✔　e. ✔

3. a. 2,438　b. 107　c. $\frac{1}{2}$　d. 30

4.



a. Sama and Youssef　b. Youssef
c. Ramy　d. $\frac{1}{2}$ meter

Cumulative Assessment 25

1. a. D　b. B　c. B
d. B　e. C　f. B

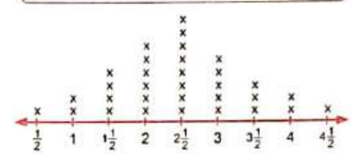
2. a. ✔　b. ✘　c. ✔
d. ✔　e. ✘

3. $\frac{2}{4}, \frac{2}{5}, \frac{2}{7}, \frac{2}{9}, \frac{2}{10}$

4.

Hours spent doing daily chores		
Number of hours	Tally	Total
$\frac{1}{2}$	|	1
1	||	2
$1\frac{1}{2}$	||||	4
2	𝍸|	6
$2\frac{1}{2}$	𝍸|||	8
3	𝍸	5
$3\frac{1}{2}$	|||	3
4	||	2
$4\frac{1}{2}$	|	1

Hours spent doing daily chores



Key X = 1 student

a. 5　b. $2\frac{1}{2}$ hr.　c. 25　d. 32

Answers of Final Assessments

Model 1

1. a. B b. D c. B
   d. C e. B f. D

2. a. ✓ b. ✗ c. ✓
   d. ✗ e. ✓ f. ✗

3. a. 3 b. 4 c. ones
   d. 17 e. 3 f. 0.06

4. a. ⟶ 2 b. ⟶ 1
   c. ⟶ 4 d. ⟶ 3

5. a. = b. $>$
   c. = d. $<$

6. 20 days

7. a. $1\frac{1}{5}$ b. 4 c. $2\frac{11}{100}$

8. a. $3\frac{4}{10}$ b. $2\frac{2}{100}$

9.

a.

sport / pupils	vollyball	handball	swimming	football
boys	4	10	8	6
girls	6	10	12	2

b. 8 c. 6

Model 2

1. a. C b. C c. C
   d. C e. C

2. a. ✗ b. ✓ c. ✗
   d. ✓ e. ✗ f. ✓

3. a. 3.33 b. $\frac{13}{6}$ c. $\frac{25}{100}$
   d. 90 e. $128 \div 5$

4. a. $>$ b. =
   c. = d. $<$

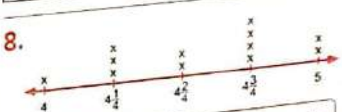
5. $\frac{4}{10} = 0.4$

6. a. 8,873 b. 3,501
   c. 351 d. 510

7.

	Model	Fraction	Unit fraction	Equation to form the fraction
a.		$\frac{2}{4}$	$\frac{1}{4}$	$\frac{1}{4} + \frac{1}{4}$
b.		$\frac{5}{6}$	$\frac{1}{6}$	$\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$

8.



Key: Each x represents 1 pencil.

a. 6 b. 5 cm. c. 4 cm.

9. a. ⟶ 2 b. ⟶ 1
   c. ⟶ 3 d. ⟶ 4

Model 3

1. a. C b. B c. D
   d. B e. C f. C

2. a. ✗ b. ✓ c. ✓
   d. ✓ e. ✗ f. ✓

3. a. 23 b. 33 c. $\frac{6}{7}$
   d. 8 e. 5 f. 3.03

4. a. ⟶ 2 b. ⟶ 4
   c. ⟶ 3 d. ⟶ 5
   e. ⟶ 1

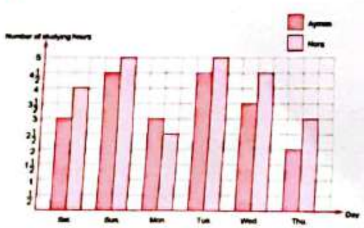
5. a. < b. >
   c. < d. =

6. a. 8,775 b. 548
   c. 1116 d. 90 R 5

7. 12

8.
   a. 2.19
   b. two and nineteen hundredths

9.



Model 4

1. a. 6 b. 3,000 c. 33
   d. 6 e. 24 f. 5.05

2. a. ✓ b. ✓ c. ✗
   d. ✓ e. ✗ f. ✗

3. a. A b. D c. C
   d. C e. C f. A

4. a. ⟶ 2 b. ⟶ 3
   c. ⟶ 4 d. ⟶ 1

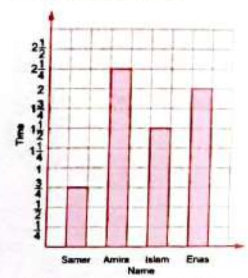
5. a. > b. <
   c. > d. <

6. 6.42 , 6 + 0.40 + 0.02

7. 9 birds.

8. a. 56 b. 47,894
   c. 113 d. 2,010

9. The internet usage



a. Amira b. Samer
c. $1\frac{1}{4}$ hour

Model 5

1. a. 0.2 b. $\frac{16}{5}$ c. 5
   d. 9 e. 2 f. 300

2. a. A b. B c. C
   d. C e. A f. D

3. a. ✓ b. ✓ c. ✗
   d. ✓ e. ✗ f. ✗

4. a. ⟶ 2 b. ⟶ 1
   c. ⟶ 5 d. ⟶ 3
   e. ⟶ 4

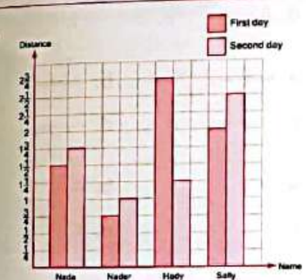
5. a. > b. <
   c. > d. >

6. a. 1,757 b. 5,174
   c. 325 d. 8,837

7. 5 m.

8. Mathew.

9.



a. Hady b. Nader

Model 6

1. a. ✓ b. ✗ c. ✓
   d. ✗ e. ✓ f. ✗

2. a. 90 b. 184 c. 12
   d. $1\frac{4}{100}$ e. 3,195 f. 7.24

3. a. A b. B c. D
   d. D e. B f. B

4. a. $5\frac{1}{5}$ b. $2\frac{1}{7}$
   c. $\frac{4}{9}$ d. $1\frac{2}{3}$

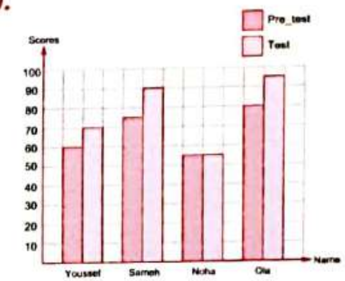
5. a. ⟶ 3 b. ⟶ 1
   c. ⟶ 2 d. ⟶ 4

6. a. < b. =
   c. < d. =

7. 7 paints

8. a. $\frac{5}{4}$, $1\frac{1}{4}$ b. $\frac{9}{6}$, $1\frac{3}{6}$

9.



a. Ola b. 55
c. Noha

Model 7

1. a. C b. A c. D
 d. D e. C f. D

2. a. 0.03 b. $\frac{7}{4}$ c. 1,006 R1
 d. 32 e. $\frac{35}{100}$ f. 1

3. a. ✓ b. ✓ c. ✓
 d. ✗ e. ✗ f. ✓

4. a. > b. <
 c. = d. >

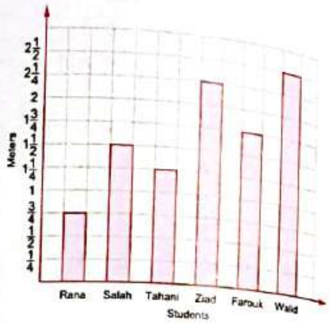
5. a. ⟶ 1 b. ⟶ 3
 c. ⟶ 2 d. ⟶ 4

6. 3 biscuits and the left is 1

7. a. 10,925 b. 3,458
 c. 377 d. 125

8. a. Three and twenty-seven hundredths
 b. 3 Ones , 2 Tenths and 7 Hundredths
 c. $3 + 0.2 + 0.07$

9.



 a. Walid b. $1\frac{3}{4}$ meter

Model 8

1. a. $6\frac{35}{100}$ b. 50 c. $\frac{75}{100}$
 d. 2 e. 45 f. 1

2. a. ✗ b. ✓ c. ✗
 d. ✗ e. ✓ f. ✗

3. a. C b. D c. D
 d. A e. B f. C

4. a. ⟶ 2 b. ⟶ 1
 c. ⟶ 4 d. ⟶ 3

5. a. > b. =
 c. = d. <

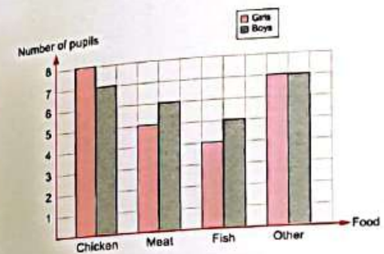
6. $92\ cm^2$

7. a. 4.58
 b. Four and 58 Hundredths
 c. 4 Ones , 5 Tenths and 8 Hundredths
 c. $4 + 0.5 + 0.08$

8. a. $4\frac{1}{3}$ b. $2\frac{2}{5}$
 c. $\frac{30}{35}$ d. $\frac{53}{100}$

9.

Girls	Boys
8	7
5	6
4	6
7	7



Model 9

1. a. ✗ b. ✓ c. ✗
 d. ✓ e. ✗ f. ✓

2. a. C b. C c. D
 d. B e. C f. D

3. a. 4 Ones , 5 Tenths , 2 Hundredths
 b. 520 c. 45 d. 7
 e. 11 f. 0

4. a. ⟶ 2 b. ⟶ 4
 c. ⟶ 1 d. ⟶ 3

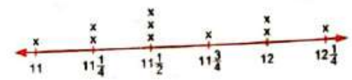
5. a. = b. <
 c. = d. >

6. $\frac{6}{11}$

7. a. 1,589 b. 1,416
 c. 80 R 5 d. 12,563

8. a. $\frac{1}{6}, \frac{5}{10}, \frac{8}{9}$ b. $\frac{1}{9}, \frac{2}{4}, \frac{11}{12}$

9.



 a. $11\frac{1}{2}$
 b. 11 , $11\frac{3}{4}$ and $12\frac{1}{4}$

Model 10

1. a. 6 b. 10 c. $2 + 0.50$
 d. 9 e. 79 f. $\frac{6}{15}$

2. a. ✓ b. ✓ c. ✗
 d. ✓ e. ✗ f. ✓

3. a. C b. B c. C
 d. B e. C f. D

4. a. > b. =
 c. > d. >

5. a. ⟶ 3 b. ⟶ 4
c. ⟶ 2 d. ⟶ 1

6. $165\ m^2$

7. $\frac{95}{100}$ km

8.

a. $0.80 > 0.09$

Ones	Decimal point	Tenths	Hundredths
0	.	8	0
0	.	0	9

b. $0.10 = 0.1$

Ones	Decimal point	Tenths	Hundredths
0	.	1	0
0	.	1	

9.

Favorite sports		
Sport	Boys	Girls
Football	9	3
Basketball	5	2
Soccer	4	13
Tennis	6	6

a. 3 boys

b. 12 students

c. soccer

d. Basketball